U.S. Bureau of Biological Survey

WILDLIFE REVIEW

AN ABSTRACTING SERVICE FOR WILDLIFE MANAGEMENT
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Except as indicated, abstracts are by Neil Hotchkiss, editor.

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WILDLIFE (GENERAL)--BIBLIOGRAPHY

SPEIRS, J. MURRAY. Bibliography of Canadian biological publications for 1946. Department of Lands and Forests, Ontario, Canada, Biological Bulletin No. 3. 91 pages. 1949.

1055 items classified under 40 headings; with a list of publications and an author index.

SPEIRS, J. MURRAY and JOHNSTON, J. M. Bibliography of Canadian biological publications for 1947. 102 pages. Ontario Fisheries Research Laboratory, Dept. of Zoology, University of Toronto, 39 Queen's Park Crescent, Toronto, Canada. February 1950.

1356 items classified under more than 40 headings; with a directory of publications and an author index.

WILDLIFE (GENERAL)--COMMUNITIES & HABITATS

BUMP, GARDINER. Wildlife habitat changes in the Connecticut Hill Game Management Area: their effect on certain species of wildlife over a twenty-year period. Cornell University Agricultural Experiment Station, Memoir 289. 75 pages, illus. November 1950.

Due to abandonment of farming on this area near Ithaca, N. Y. there has been a great increase in overgrown fields and many other changes in vegetation. This has nearly eliminated pheasants, favored woodcock, changed the distribution of ruffed grouse, and increased winter and spring cover for cottontails and deer. In the next score of years the carrying capacity will decrease for most species of wildlife now resident.

ELTON, CHARLES. The ecology of animals. 3rd edition. 97 pages. Wiley, New York. 1950. $1.25. (copied from The Scientific Monthly for January 1951, page 67).

A review by Austin H. Clark says, in part, "Anyone who wishes a broad, comprehensive, and thoroughly intelligible survey of the intricate subject of the interrelationships of animals with each other and with their environment cannot do better than to study this book."

GWATHMEY, JOHN H. The Chickahominy. Virginia Wildlife 11(10): 5-7, 12, illus. October 1950.

Human history and wildlife on this tidewater Virginia river.

HOPKINS, JOHN M. Forty-five years with the Okefenokee Swamp. 69 pages, illus. Georgia Society of Naturalists, Bulletin No. 4. 1946? $1.00.

This bulletin describes the early history of the swamp, logging and natural history during the first third of the century, and a final 8 years as a federal wildlife refuge.

MOYLE, JOHN. Lake Minnetonka--ten thousand in one. The Conservation Volunteer 13(77): 1-5. July-August 1950.

One of Minnesota's best wood duck areas and a lake with good and varied fishing. Many problems attend the getting along together of its wildlife and its large human population.

MAIN LIBRARY

WILDLIFE (GENERAL)--COMMUNITIES & HABITATS--Continued

O'NEILL, HUGH. The Pamunkey. Virginia Wildlife 11(11): 10-12, illus. November 1950.
Human history and wildlife on this tidewater Virginia river.

SKELTON, KATHLEEN GREEN. Parker River Refuge. Nature Magazine 43(8): 431-434, illus. October 1950.
History of wildlife in a tidewater area in northeastern Massachusetts.

TRUAX, W. C. Horicon Marsh Wildlife Area: its past--its present--its future. 9 pages, illus. Wisconsin Conservation Department, Madison, Wis. July 1949.

WILSON, VANEZ T. and CARSON, RACHEL L. Bear River, a national wildlife refuge. U. S. D. I., Fish and Wildlife Service, Conservation in Action No. 8. 14 pages, illus. 1950. 10¢ from Government Printing Office.
Drawings, photos, and text all demonstrate the wealth of life on this northern Utah area.

YONGE, C. M. The sea shore. 311 pages, illus. Collins, London. 1949. 21 shillings. (copied from The Quarterly Review of Biology for June 1950, page 208).
A review by Joel W. Hedgpeth says, in part, "Now, with the aid of a master photographer, Yonge has left almost nothing for his successors in England to add or improve upon, and has set up a model for anyone who undertakes to write about another shore." ".....it is not a provincial book."

WILDLIFE (GENERAL)--FAUNAS & MANUALS

MUNRO, J. A. The birds and mammals of the Creston region, British Columbia. 90 pages, illus. Occasional Papers of the British Columbia Provincial Museum, No. 8. August 1950. 75¢.
"The Creston region of British Columbia, more particularly that part of it known as the Kootenay Flats, has been subject to profound environmental modification during the past 20 years." "The purpose of this paper is to record the primitive characteristics of the region while remnants of them still are available for study, to note the current, but rapidly changing, scene, and to discuss the bird and mammal populations as observed in 1947, 1948, and 1949." The territory studied extends from Kootenay Lake to the British Columbia-Idaho line.

WILDLIFE (GENERAL)--FOOD

DOW, GEORGE F. and others. Producing blueberries in Maine. The Maine Agricultural Experiment Station, Bulletin 479. 42 pages, illus. March 1950.
A section on pages 35 and 36 deals with the protection of blueberries from deer, smaller mammals, and herring gulls.

WILDLIFE (GENERAL)--FOOD--Continued

NAGEL, W. O. Table in the wilderness. Missouri Conservationist 11(10): 4-5, 12-13, illus. October 1950.
This article describes wildlife food habits studies in Missouri and summarizes for Missouri the food habits of quail, coyote, red fox, gray fox, bobcat, house cat, horned owl, ducks, and deer.

WILDLIFE (GENERAL)--MANAGEMENT

ANONYMOUS. Federal aid in wildlife restoration: annual report of the Pittman-Robertson program for the fiscal year ending June 30, 1950. 56 pages, illus. Wildlife Management Institute, Wire Bldg., Washington 5, D. C. 1950.
This report is similar to those of previous years in its narrative summaries of activities and its list of projects by states and territories. 703 projects were approved, and more than 11 million dollars were obligated during the year. Restoration and improvement of habitat were major activities.

ANONYMOUS. Federal aid in Wyoming. Wyoming Wild Life 14(9): 4-9, 32-36, illus. October 1950.
An account of 2 land acquisition, 11 development, and 4 research projects.

ANONYMOUS. The fortieth convention of the International Association of Game, Fish and Conservation Commissioners. 185 pages, illus. 1950.
Proceedings of this convention, held in Memphis, on September 14 and 15, 1950, include several papers on wildlife management.

ANONYMOUS. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. 196 pages, illus. 1949.
Proceedings of this convention, held in Winnipeg on September 12 and 13, 1949, include several papers on wildlife management.

ANONYMOUS. Wildlife & good land use. 11 pages, illus. State of New York Conservation Department, Fish & Wildlife Information Bulletin No. 7. 1950.
This bulletin tells of the services available to landowners for preventing soil erosion and increasing the value of land for crops, livestock production, wood products, and wildlife. Some of the special practices discussed are planting trees and shrubs, fencing out livestock, and developing muskrat marshes.

BAKER, WILLIS M. Fish and wildlife in the Tennessee Valley. 17 pages, illus. Tennessee Valley Authority, Division of Forestry Relations, Norris, Tenn. 1950.
"The fish and wildlife activities of the Tennessee Valley Authority are directed almost entirely to the multiple-purpose water impoundments on the Tennessee River and its tributaries." There are 28 major reservoirs. The principal wildlife activity concerns waterfowl. Studies and developments are under TVA, state, and U. S. Fish and Wildlife Service direction.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

BODE, I. T. and others. "In The Public Service", a report on wildlife and forestry in Missouri--1949-'50. Missouri Conservationist 11(9): 1-32, illus. September 1950.

The report of the Fish and Game Division on pages 10-23 comprises reports of the Fisheries Section and the Game Section. The latter describes mammal management (deer, furbearers, beaver, predators); bird management (quail, waterfowl, turkey, pheasant, prairie chicken); research on rabbits, quail cover, deer, waterfowl, and predators; and the acquisition and development of lands.

CALHOUN, J. C. and others. Georgia Game and Fish Commission, Public Information Bulletin No. 1. 91 pages, illus. 1949-50.

More than two dozen brief articles describe the activities of the Game and Fish Commission. They include "Predators of the Bob White Quail" and "Federal Aid Projects".

CARPENTER, RALPH G., 2nd. Biennial report of the Department of Fish and Game [State of New Hampshire], July 1, 1948 to June 30, 1950. 103 pages, illus. 1950.

A section on game research deals in considerable detail with waterfowl, ruffed grouse, deer, beaver, and pheasant. Other sections describe fisheries research, propagation of fish, propagation of game, natural propagation and habitat management (fish and waterfowl), and education.

CUNNINGHAM, JAMES G. and others. Provincial [British Columbia] Game Commission report for the year ended December 31st, 1948. 118 pages, illus. Victoria, B. C. 1950.

Included are narrative reports on fish and game conditions, statistical reports on the activities of the Commission, and a special report "Pheasant Study in British Columbia in 1948."

DAY, ALBERT M. and others. Hearings before the subcommittee to investigate wildlife conservation, committee on expenditures in the executive departments, United States Senate, eighty-first Congress, first session, on wildlife conservation activities of the federal government, 1948. 319 pages. U. S. Government Printing Office, Washington 25, D. C. 1949.

Includes reports by the Fish and Wildlife Service, Bureau of Reclamation, National Park Service, and Bureau of Land Management of the Interior Department; Soil Conservation Service and Forest Service's Division of Wildlife Management; and Corps of Engineers of the United States Army.

DODGEN, H. D. Annual report of the Game, Fish and Oyster Commission, State of Texas, for the fiscal year 1948-49, September 1, 1948 to August 31, 1949. 28 pages. Austin, Texas. 1949.

Included in this report are sections on wildlife restoration (under Federal Aid), the Texas Cooperative Wildlife Unit, law enforcement, fish management, pollution, etc.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

DORER, RICHARD J. Partners--farmers and sportsmen. For the attention of sportsmen (Part six) and For the attention of farmers (Part seven). The Conservation Volunteer 13(77): 10-13 and 13(78): 35-39. July-August and September-October 1950.

FEARNOW, TED. Planning for progress. Virginia Wildlife 11(8): 4-7, illus. and 11(9): 10-11, 22, illus. August and September 1950.
"A Report from the Field Conference to Formulate a Plan for the Third Five-Year Development Program for Virginia's Cooperative Hunting and Fishing Area." This 1½-million-acre area on the Jefferson and George Washington National Forests is managed by the U. S. Forest Service and the Virginia Commission of Game and Inland Fisheries.

FEARNOW, TED. Timber & game, twin crops on the Allegheny. Pennsylvania Game News 21(7): 4-11, illus. October 1950.
Management on the Allegheny National Forest in northwestern Pennsylvania.

FREEMAN, R. M. Report of the State Game and Fish Commission to the 1948 regular session of the Mississippi legislature. 15 pages. 1947.
Includes information on personnel, restoration (refuges, restocking, surveys), stream pollution, museum and laboratory, law enforcement, and fish distribution.

HARROY, JEAN-PAUL and others, editors. International Technical Conference on the Protection of Nature. Lake Success, 22-29-VIII-1949. Proceedings and Papers. 583 pages. UNESCO, 19, Avenue Kléber, Paris, 1950.
Following reports of sections on education, ecology, and administrative matters are more than 100 papers on these subjects.

HASTAIN, HARVEY E. and others. Fortieth biennial report of the [California] Division of Fish and Game for the years 1946-1948. 118 pages, illus. 1949?
The "Report of the Bureau of Game Conservation" on pages 65-73 describes the work of the game farms, management areas, predator control, management districts, fish and game lands, federal aid work, the disease laboratory, beaver trapping, and big game trapping.

JOHNSON, ELMER and others. State of Montana, Biennial report of the Fish and Game Commission for May 1, 1946--April 30, 1947, May 1, 1947--April 30, 1948. 41 pages, illus. Montana Fish and Game Department, Helena, Montana. 1948?
This report includes accounts of big game, upland game birds, fur-bearing animals, predator control, and waterfowl; and tables showing personnel, finances, license sales, law violations, fish distribution, and fish eggs taken.

LAWSON, F. A. Annual report of the Board of Game and Fish Commissioners of the State of Delaware. 10 pages. 1947.
Tables show personnel, finances, law enforcement, and game take.

WILDLIFE (GENERAL)—MANAGEMENT—Continued

LAY, DANIEL W. Wildlife relations to timberland management. Texas Game and Fish 9(2): 2-5, illus. January 1951.
Reactions of quail, deer, turkeys, and squirrels to different timberland management practices.

LEFFLER, ROSS L. and others. Biennial report 1949-1950, Pennsylvania Game Commission. Pennsylvania Game News 21(8): 67-128, illus. November 1950.
This report is for the 2 years ending May 31, 1950. It deals with finances, public relations, conservation education, wildlife research, land utilization, wildlife protection, game propagation, and the status of game in the State.

LLOYD, HOYES. Summarization of the Fifteenth North American Wildlife Conference. Transactions of the Fifteenth North American Wildlife Conference. Pages 653-662. 1950.
The author believes that, due to ignorance, we are wrong about many of the lesser and perhaps some of the greater problems of conservation, but that "We are right about conservation as a whole. We are right when we consider the resources of this continent a patrimony to be used prudently by this and future generations."

MACKENZIE, A. W. Report of the Department of Lands and Forests [Nova Scotia], 1949. 96 pages, illus. Halifax, N. S. 1950.
On pages 62-89 are descriptions of the Provincial wildlife survey; summaries of the status of moose, deer, varying hare, partridge, pheasant, and fur bearing animals; and summaries of bounties on bears, fur farming and the fur trade, prosecutions, game sanctuaries, and licenses.

McCLINTIC, C. F. Annual report of the Conservation Commission of West Virginia, July 1, 1948 to June 30, 1949. 85 pages, illus.
On pages 56-73 is the report of the Division of Game Management. It is principally concerned with Pittman-Robertson game management, Pittman-Robertson wildlife research projects, predator control and fur management, and restocking.

McDIARMID, J. S. Annual report for period ending March 31st, 1949, Department of Mines and Natural Resources, Manitoba. 114 pages, illus. 1949.
The report of the Game and Fisheries Branch on pages 55-80 includes discussions of big game, predatory animals, game birds, migratory waterfowl, the fur trade, experimental fur farm and laboratory, diseases of fur bearers, registered trapline districts, fur rehabilitation blocks, biological investigations (beaver, muskrat, and sharp-tailed grouse), and patrol service and law enforcement.

MITCHELL, GLEN. Conservation vs. management. Game Bulletin 2(4): 3, 9, illus. October 1950.
"Any product or commodity that produces a surplus crop periodically should be classed under management and handled under that classification....." Elk and deer management in Washington depend on controlling the size of the herds and controlling the production of browse.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

PAYNTER, E. L. Report of the Game Commissioner. In Annual report of the Department of Natural Resources and Industrial Development of the Province of Saskatchewan, for the fiscal year ended March 31, 1949. Pages 81-99, illus. Regina, Saskatchewan. 1950.

This report includes information on legislation and law enforcement, the northern conservation programme (beaver and muskrat trapping managed in cooperation with the Dominion Government Department of Indian Affairs), South Saskatchewan muskrat programme, fur co-operatives, fur farming, beaver conservation, game preserves and bird sanctuaries, big game, waterfowl, upland game birds, and predator control.

PHILLIPS, J. M. Game & predators in Pennsylvania. Pennsylvania Game News 21(7): 35-39, illus. October 1950.

A commercial game breeder describes conditions that call for destruction of predators if there is to be game.

POULIOT, CAMILLE E. General report of the Minister of Game and Fisheries [Quebec], concerning the activities of fish and game for the year ending March 31st, 1948. 201 pages, illus. Quebec. 1949.

This report includes discussions of furs, big game (particularly deer--see page 191), and migratory birds.

PRESNALL, CLIFFORD C. The predator question--facts versus fancies. Transactions of the Fifteenth North American Wildlife Conference. Pages 197-207. 1950.

The author shows that "Predator control on the basis of facts rather than fancies has its proper place among the several tools of environmental management."

PRESTON, WILLIAM S. and others. Report of the Vermont Fish & Game Service, 1947-1948. 38 pages, illus. Montpelier, Vt. 1949.

Individual reports that deal with game include ones on the deer kill, Pittman-Robertson projects, field trials, and pheasants.

RICHARDSON, A. A. Report of A. A. Richardson chief game warden of the State of South Carolina, fiscal year July 1, 1949--June 30, 1950. 30 pages, illus. 1950.

This report comprises descriptions of federal aid projects, a report of fish hatcheries, and financial tables.

SCHWARTZ, C. W. Conservation sketchbook. 28 pages, illus. Missouri Conservation Commission, Jefferson City, Mo. 1950. 10¢.

An attractive and informative pamphlet composed of reprints of 23 full-page plates that originally appeared in The Missouri Conservationist. Each page deals with a single subject and has drawings that show the relations of several kinds of animals to that subject.

WILDLIFE (GENERAL)--MANAGEMENT--Continued

SCOTT, H. R. Report of the Minister of Lands and Forests of the Province of Ontario, for the fiscal year ending March 31, 1949. 184 pages, illus. Toronto, Ontario. 1950.

The report of the Division of Fish and Wildlife on pages 23-44 discusses wildlife management (trap-line management, fur farming, wolf bounty, bear bounty), enforcement, game fish and hatcheries, and commercial fisheries.

SEARS, PAUL B. Conservation in theory and practice. The Ohio Journal of Science 50(4): 149-155. July 1950.

SHANTZ, H. L. The ecological approach to land management. Journal of Forestry 48(10): 673-675. October 1950.

SWIFT, ERNEST. Controlled harvesting of wildlife and its significance. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 98-107. 1949.

TANNER, N. E. Annual report of the Department of Lands and Mines of the Province of Alberta, for the fiscal year ended March 31st, 1949. 136 pages. Edmonton, Alberta. 1950.

Included in this report are reports of the Fish and Game Commissioner, the Superintendent of Game, and the Superintendent of Fisheries. That of the Superintendent of Game discusses individual species of big game, migratory game birds, upland game birds, fur production, predator control, sanctuaries, and law enforcement.

WASHBURN, MEL, editor. Third biennial report, Department of Wild Life and Fisheries, State of Louisiana 1948-1949. 372 pages, illus. Dept. of Wild Life and Fisheries, 126 Civil Courts Bldg., New Orleans, La. 1950.

This report contains individual reports of the Division of Education and Publicity, the Division of Fur and Refuge, the Division of Enforcement, the Division of Fish and Game, the Chief Biologist, and others. A large part of the report of the Division of Fish and Game deals with progress of Federal Aid projects.

WILLIAMS, C. A. Game Division report, 1949. In 113th annual report of the Department of Lands and Mines of the Province of New Brunswick for the year ended 31st October, 1949. Pages 69-77, illus. Fredericton, N. B. 1950.

This report includes information on game refuges and on the status of different game mammals and birds.

WILDLIFE (GENERAL)--POPULATIONS

DAHNE, BOB. Now they are gone. Florida Wildlife 5(5): 6-7, 30. October 1950.

The story of the destruction of the buffalo, egret, fur seal, passenger pigeon, Atlantic salmon, and mention of the extinction or local elimination of many other birds and mammals. The processes that lead to extinction are being speeded up, and we will soon have to add other names to the list of vanished forms.--W. H. Stickel.

DEWEY, EDWARD R. and DAKIN, EDWIN F. Cycles, the science of prediction, with 1950 postscript: further deflation and its promise. 255 + 52 pages, illus. Henry Holt and Co., New York. 1950. $3.50.

A chapter on "Some Rhythmic Cycles in Natural Phenomena" deals with animal populations, climatic conditions, human diseases, plant growth, sunspots, etc.

PALMGREN, PONTUS. Some remarks on the short-term fluctuations in the numbers of northern birds and mammals. Oikos 1(1): 114-121, illus. 1949.

"The short-term fluctuations of population densities in northern mammals and birds seem largely explainable as a compound result of random variation of some master factors, apparently climatic, and the influence of the population density of the preceding year (autoregression)."

ROWAN, WILLIAM. The coming peak of the ten-year cycle in Canada. Transactions of the Fifteenth North American Wildlife Conference. Pages 379-381. 1950.

"In view of the many species and the vast numbers involved, it strikes the writer as a matter of such importance from the viewpoint of general animal conservation on this continent, that an all-out effort, on a collaboration basis, might profitably be organized to analyze the closing, and most critical, years of the current cycle."

SIIVONEN, LAURI. Some observations on the short-term fluctuations in numbers of mammals and birds in the sphere of the northernmost Atlantic. Papers on Game Research 4. 31 pages, illus. 1950.

This article deals primarily with fluctuations in numbers of lemming in Finnish Lapland, secondarily with other mammals and with birds. Several species show regular 3-year to 4-year fluctuations.

SONDRINI, WILLIAM J. Estimating game from licensee reports. 50 pages, illus. Connecticut State Board of Fisheries and Game, Pittman-Robertson Bulletin No. 3. 1950.

This report comprises a statistical study, a discussion of the estimated kill as an index of abundance (which includes accounts of (1) the effect of the number of hunters, (2) the kill by species, and (3) the factors influencing the kill), and a discussion of population trends by species.

WILDLIFE (GENERAL)--POPULATIONS--Continued

VOIPIO, PAAVO. Evolution at the population level with special reference to game animals and practical game management. Papers on Game Research 5. 176 pages, illus. 1950.

This article includes discussions of (1) variations in wild animals, (2) causes of geographic variation, (3) promotion of game quality (in squirrel, red fox, arctic fox, muskrat), and (4) protection of game quality.

YATES, FRANK. Sampling methods for censuses and surveys. 318 pages. Hafner Publishing Co., New York. 1949. $6.00. (copied from The Journal of Wildlife Management for July 1950, page 358).

A review by Vincent Schultz says, in part, that this book ".....is an excellent reference for the wildlife research worker or conservation official interested in making a statewide game inventory. The author gives illustrations from his wide experience with agricultural and woodland surveys. Persons in the wildlife profession who wish to apply the fundamental principles of sampling to inventories whether of the mailed questionnaire, personal interview, or physical measurement type should consult this book when planning the survey in order to conduct the study on a sound statistical basis."

WILDLIFE (GENERAL)--VALUES

EVANS, EVERETT F. and DONAHUE, ROY L. Our South, its resources and their use. 406 pages, illus. The Steck Co., Austin, Texas. 1949. $3.50.

Includes a 50-page chapter on wildlife.

ROBSON, JOHN B. Louisiana's natural resources: their use and conservation. 184 pages, illus. Silver Burdett Co., New York. 1950. $2.28.

This high school textbook has chapters on soil, forests, wildlife, fish and other seafood, water, and minerals. The chapter on wildlife has separate sections on birds, mammals, reptiles, wildlife refuges, and wildlife restoration.

SMITH, GUY-HAROLD, editor. Conservation of natural resources. 552 pages, illus. John Wiley and Sons, Inc., 440 Fourth Ave., New York 16, N. Y. 1950. $6.00. (copied from Texas Game and Fish for January 1951, page 32).

An anonymous review emphasizes the need of a summary chapter to tie together the material presented by the different contributors and integrate their sometimes conflicting views. A chapter on wet lands needs better coverage of their natural products; while one on wildlife conservation is a vast improvement over the material in A. E. Parkins and J. R. Whitaker's "Our Natural Resources and Their Conservation", which the present book replaces. "Conservation has progressed so far during the past 15 years that it is unfortunate that this entire book was not completely rewritten....."

WILDLIFE (GENERAL)--VALUES--Continued

WIRTH, CONRAD L. and others. A survey of the recreational resources of the Colorado River basin. 242 pages, illus. United States Department of the Interior. 1950. $3.25 from the Superintendent of Documents, Government Printing Office.

This well-illustrated report has chapters describing the basin as a whole, its geology, its plant and animal life (their status, management, recreational values), prehistory of man, potential reservoirs, recreational benefits of reservoirs, the Grand Canyon, canyon lands of southeastern Utah, Dinosaur National Monument, and the conservation of recreational resources.

MAMMALS--COMMUNITIES & HABITATS

POURNELLE, GEORGE H. Mammals of a North Florida swamp. Journal of Mammalogy 31(3): 310-319, illus. August 1950.

The swamp described is a short distance east of Gainesville, Alachua Co., Florida. It was studied in 1941 and 1946. The article describes 4 plant communities and discusses 18 species of mammals.

MAMMALS--DISEASES

ANDERSON, J. ROBERT. Rabies--a public health problem of increasing importance. Virginia Wildlife 11(8): 18-22, illus. August 1950.

A general account, with figures on incidence in Virginia in 1948 and 1949.

BRANDLY, P. J. and RAUSCH, ROBERT. A preliminary note on trichinosis investigations in Alaska. Arctic 3(2): 105-107. August 1950.

Investigations were begun early in 1949. Nearly all species of land carnivores and some rodents and shrews have been examined. Mammals found infected from the arctic coast were polar bear, arctic fox, red fox, white whale, and Eskimo dog. Mammals found infected from south of the Brooks Range were brown bear, grizzly bear, wolf, and wolverine. Of 70 adult people skin tested in one village, one-fourth reacted positively.

CONNELL, FRANK H. Trichinosis in the arctic: a review. Arctic 2(2): 98-107, illus. September 1949.

There is an alarmingly high and dangerous incidence of Trichinella infection in polar bears and sledge dogs. "Trichinosis in the Arctic is a major public health problem....."

ROTH, HANS. Trichinosis in arctic animals. Nature 163(4151): 805-806. May 21, 1949.

In the spring of 1947 trichinosis caused more than 30 deaths near Disko Bay, Greenland. Apparently most of the cases resulted from the eating of walrus meat. Trichinella was present in 46 of 66 dogs, 6 of 19 polar bears, 3 of 101 arctic foxes.

MAMMALS--DISEASES--Continued

YOUNG, STANLEY P. Rabies in the wild. American Forests 56(8): 26, 30, 42, illus. August 1950.

Rabies has been known in the United States since colonial days. "In the order of their importance, wild animals susceptible to rabies are: feral dogs, coyotes, foxes, wolves, skunks, bobcats, badgers, pumas or mountain lions, and martens." The author describes outbreaks in different parts of the country and tells how the Fish and Wildlife Service cooperates with the states in the destruction of rabid or potentially rabid animals.

MAMMALS--FOOD

TURPIN, R. L. Agricultural damages. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 87-91. 1949.

Damage by game animals and ways it is being handled in Canada and the United States.

MAMMALS--POPULATIONS

BANFIELD, A. W. F. The mammals of Waterton Lakes National Park. 43 pages, illus. Canadian Wildlife Service, Wildlife Management Bulletin, Series 1, No. 1. April 1950.

The author investigated this southwestern Alberta area in 1947. He describes the ranges and populations of each of the larger mammals, discusses natural ranges with reference to the grazing of domestic stock, and list 43 species. Detailed maps show the summer and winter distribution of 9 wild mammals and domestic stock.

HERMANN, JACK A. The mammals of the Stockton Plateau of northeastern Terrell County, Texas. The Texas Journal of Science 2(3): 368-393, illus. September 1950.

This survey of the ecological distribution of mammals was made in the spring and summer of 1949. 40 species are known from the area. Some carnivores were plentiful, while their prey were scarce. "A serious moisture deficiency in 1948 and in part of 1949, coupled with over-grazing by sheep, is considered to be direct cause of the unbalanced predator-prey relationship."

MANSUETI, ROMEO. Extinct and vanishing mammals of Maryland and District of Columbia. Maryland Naturalist 20(1&2): 2-48, illus. Winter-spring 1950.

A detailed account of the history and present status of bison, elk, white-tailed deer, black bear, cougar, Canada lynx, bobcat, marten, fisher, timber wolf, red fox, harbor seal, hooded seal, beaver, and porcupine. There is a list of 35 mammalogists and a long, essentially complete bibliography of all Maryland mammals.

MAMMALS--POPULATIONS--Continued

WODZICKI, K. A. Introduced mammals of New Zealand: an ecological and economic survey. Department of Scientific and Industrial Research, Bulletin No. 98. 255 pages, illus. Wellington, New Zealand. 1950. 12 shillings and sixpence.

An introductory chapter describes the main periods of change in New Zealand wild life, summarizes the liberations of exotic mammals and birds, summarizes the present conditions, and describes control. The succeeding chapters describe in detail the liberation, spread, present distribution, economic status, and control of opossum (Trichosurus), wallabies, hedgehog, mustelids, wild cats, rats, mouse, rabbit, hare, wild cattle, sheep, horse, wild goat, chamois, tahr, red deer, other deer, and wild pig. Maps, tables, and photos are helpful and attractive additions to the well-organized text.

MAMMALS--BIG GAME (GENERAL)

ANONYMOUS. The 1949 big game harvest. Wyoming Wild Life 14(8): 4-11, 32-33, illus. September 1950.

A discussion of the take of antelope, mule deer, elk, moose, mountain sheep, and bear, with comparisons with the harvests of the preceding 9 years.

BUECHNER, HELMUT K. Use of the helicopter in wildlife work. The Journal of Wildlife Management 14(4): 472-473. October 1950.

Big game inventories, law enforcement, etc.

COWAN, I. McT. Some vital statistics of big game on overstocked mountain range. Transactions of the Fifteenth North American Wildlife Conference. Pages 581-588. 1950.

This discussion concerns big game in the national parks of Canada between 1943 and 1946. Effective reproduction was low in all species. The species varied in their reaction to unusually severe winters.

HUNTER, G. M. "Uncontrolled" big-game hunting. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 77-83. 1949.

Conditions in Colorado.

STODDART, L. A. The stockman: his importance in management of land and big game. Transactions of the Fifteenth North American Wildlife Conference. Pages 83-93, illus. 1950.

MAMMALS--BIG GAME (DEER)

BARICK, FRANK B. One will get you twenty! in North Carolina's big game restoration program. Wildlife in North Carolina 14(10): 14-17, 19, illus. October 1950.

This program includes creation of more deer herds, creation of more refuges and public hunting grounds, development of better habitat improvement practices, and development of more efficient and equitable hunting regulations.

MAMMALS--BIG GAME (DEER)--Continued

BARTLETT, I. H. Michigan deer. 50 pages, illus. Game Division, Michigan Department of Conservation, Lansing 13, Mich. June 1950.

Michigan now has a million deer. In 4000 square miles of the Lower Peninsula they have outgrown their winter food supply; while in some areas damage to orchards and truck gardens is a major problem. In each case the herd must be reduced, and that involves the hunting of does and fawns, as well as bucks.

BOYCE, ARLOW P. Orchard damage. Michigan Conservation 19(6): 9-10, 26, illus. November-December 1950.

Damage is widespread and serious in orchards between Manistee and Charlevoix. "Proper herd control by managed hunting, effective deer repellents, and deer-proof fences must all be used if the multi-million dollar fruit industry is to escape serious losses."

BROHN, ALLEN and KORSCHGEN, LEROY J. Precipitin test--a useful tool in game-law enforcement. Transactions of the Fifteenth North American Wildlife Conference. Pages 467-476. 1950.

"This paper presents a method--the precipitin test--for distinguishing venison, without the usual identifying characters, from the flesh of domestic animals with which it might be confused."

BUSS, IRVEN O. and HARBERT, FRANK H. Relation of moon phases to the occurrence of mule deer at a Washington salt lick. Journal of Mammalogy 31(4): 426-429, illus. November 1950.

Counts were made at 7:00 p.m. of the number of mule deer using a salt-lick area as seen at a fire lookout in the Blue Mountains of southeastern Washington. The observations extended from July 15 to August 17, 1948. The largest count was made when the moon was nearly full. The occurrence of deer dropped as the moon waned and rose as the moon phases brightened.--Lloyd W. Swift.

CHEATUM, E. L. and SEVERINGHAUS, C. W. Variations in fertility of white-tailed deer related to range conditions. Transactions of the Fifteenth North American Wildlife Conference. Pages 170-189, illus. 1950.

"The fertility levels of [911] deer were observed to correspond generally with the quality of their range. Intensive harvests, singly or combined with range improvements, are believed to have resulted in better forage conditions and were followed by increases in fertility." The best range is in the western part of the State; the poorest is in the central Adirondacks.

COTTAM, CLARENCE and SILVER, JAMES. The last stand of the key deer. National Parks Magazine 24(102): 100-103, illus. July-September 1950.

Not more than 50 of these smallest of North American deer are left on a few of the Florida Keys. The authors describe their habits and environment and tell how to keep them from extinction.

MAMMALS--BIG GAME (DEER)--Continued

CRONEMILLER, FRED P. and BARTHOLOMEW, PAUL S. The California mule deer in chaparral forests. California Fish and Game 36(4): 343-365, illus. October 1950.

"A three-year study was made of a herd of California mule deer and its chaparral habitat within a game refuge on the Angeles National Forest, California." Forage was low in quality and little can be done to improve it. Under the existing buck law the refuge ".....contributed nothing to the immediately surrounding area open to shooting.....".

DARROW, ROBERT W. What's happening to our deer range? The New York State Conservationist 5(3): 6-8, illus. December-January 1950-1951.

"Overbrowsing has become chronic in many localities, not only in the central Adirondacks, but throughout the southern part of the State." "Only by reducing the herd to where it does not quite consume the annual browse production can the range be kept in good condition--"

DAVIS, WAYNE. Game research tackles Black Hills deer problem. South Dakota Conservation Digest 17(9): 8-10, 12, illus. September 1950.

This article describes over-used, properly-used, and under-used winter deer range, and tells what is being done to improve the management of the entire range.

DeGARMO, W. R. and CHIAVETTA, KENNETH. Where to seek finest bucks. West Virginia Conservation 14(7): 15-23, illus. October 1950.

Figures on and discussion of populations in 3 of West Virginia's 4 deer herds (Allegheny Mountains, Eastern Panhandle, and Western) in 1949.

FOWLE, C. DAVID. The "natural" control of deer populations. The fortieth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 56-63. 1950.

".....limitation in terms of quantity and ease of availability of winter food is the most important natural factor controlling population."

HAHN, HENRY C., JR. and TAYLOR, WALTER P. Deer movements in the Edwards Plateau. Texas Game and Fish 8(12): 4-9, 31, illus. November 1950.

"Daily and seasonal movements of white-tailed deer in the Edwards Plateau region in general are so limited that it would be well for landowners to consider the existing deer population as resident."

HANSEN, HENRY L. and BROWN, R. M. Deer, brush and the Itasca Park forest. The Conservation Volunteer 13(78): 1-5. September-October 1950.

To perpetuate this forest, there will have to be control of hazelbrush and control of the deer herd.

MAMMALS--BIG GAME (DEER)--Continued

HAUGEN, ARNOLD O. and DAVENPORT, L. A. Breeding records of whitetail deer in the Upper Peninsula of Michigan. The Journal of Wildlife Management 14(3): 290-295. July 1950.

"Observations on penned deer indicate that whitetail does in the Upper Peninsula of Michigan are bred mainly during the middle of November. Fawns are dropped mainly between May 31 and June 10....."

LATHAM, ROGER M. Pennsylvania's deer problem. Pennsylvania Game News, Special Issue No. 1. Pages 2-40, illus. September 1950.

The author summarized the whitetail's life history, its history in Pennsylvania, management problems and research studies, possible solutions of problems, and recommendations. Herd reduction and control are the most reasonable solution of all the problems.

LAUCKHART, BURTON. Deer management in Washington. [Washington State] Game Bulletin 1(1): 1, 4, illus. August 1949.

".....the Game Commission inaugurated a program in 1948 to start a general harvest of doe deer in all areas which are at or near range carrying capacity at the present time."

LAUCKHART, J. B. Determining the big-game population from the kill. Transactions of the Fifteenth North American Wildlife Conference. Pages 644-649, illus. 1950.

December counts of mule deer to determine the relative abundance of bucks and the relative fertility of does are the basis of a regular program of securing statistics on deer herds in the State of Washington.

LEOPOLD, A. STARKER. Deer in relation to plant succession. Transactions of the Fifteenth North American Wildlife Conference. Pages 571-578. 1950.

The author reviews historical changes in populations of both mule and whitetailed deer and discusses "Purposeful Control of Plant Successions for Deer", "Effect of Deer Upon Their Own Range", and "Overpopulations of Deer." He concludes, in part: "We cannot continue slashing and burning the forest and overgrazing the ranges--processes which vicariously have produced some of our best deer ranges in the past. Creation of deer range in the future will have to be deliberately planned as a part of wild-land management, with due regard for other values and uses."

LEOPOLD, A. STARKER. Deer in relation to plant successions. Journal of Forestry 48(10): 675-678. October 1950.

Revised version of the paper that appeared on pages 571-578 of the Transactions of the Fifteenth North American Wildlife Conference.

MATHERS, DEAN. How about the buck law? Florida Wildlife 4(7): 16-17, 33. December 1950.

Why Florida has an antler law.

MAMMALS--BIG GAME (DEER)--Continued

McDOWELL, ROBERT D. Do you know? The facts about white-tailed deer. Pennsylvania Game News, Special Issue No. 1. Pages 41-50, illus. September 1950.
Questions and answers on life history, food habits, age, weight, antler development, the Pennsylvania herd, laws, etc.

McKEAN, WILLIAM T. N. D. deer pastures. North Dakota Outdoors 13(5): 4-5, illus. November 1950.
In recent years an increased population of deer has resulted in greater damage to farm crops, starvation, overbrowsing of woods, and increased use of buckbrush.

MORTON, ALLEN D. Sampling yields and utilization of browse on winter deer ranges in northern Idaho. Master's thesis, University of Idaho, 1950. (copied from an abstract in Journal of Forestry for October 1950, page 684).
"Serviceberry and willow (Salix spp.) provided most of the available browse forage and received the greatest use."

O'ROKE, EARL C. and CHEATUM, E. LEONARD. Experimental transmission of the deer lungworm, Leptostrongylus alpenae. The Cornell Veterinarian 40(3): 315-323. July 1950.
This article reports part of the extensive studies of deer lungworms carried on independently by each author. Altogether, 24 experiments were performed using 22 different deer, most of which were fawns that had not taken solid food or water before they were captured for use as experimental animals. It was demonstrated that Leptostrongylus alpenae is not transmissible without undergoing development in a snail host after being voided as first stage larvae in deer droppings. Experimental feeding proved the following species of snails to be satisfactory intermediate hosts: Succinea retusa, Zonitoides arboreus, Discus cronkhitei, Polygyra hirsuti, Polygyra albolabris. The period required for development of first stage larvae to the infective stage in the intermediate hosts was approximately 35 days. The shortest elapsed period in deer was 67 days from date of feeding to first appearance of first stage larvae in droppings.--E. L. Cheatum.

RESNER, O. L. Control of big game depredations on agriculture. [Washington State] Game Bulletin 1(1): 5-6, illus. August 1949.
Different types of fences have been used successfully. A new deer and elk repellent has given uniformly good results in protecting orchard trees, berries, and vegetables throughout Washington.

ROBINETTE, W. LESLIE and GASHWILER, JAY S. Breeding season, productivity, and fawning period of the mule deer in Utah. The Journal of Wildlife Management 14(4): 457-469, illus. October 1950.

SEVERINGHAUS, C. W. Aging a deer. The New York State Conservationist 5(2): 8-10, illus. October-November 1950.
Clear photos of teeth, well explained.

MAMMALS--BIG GAME (DEER)--Continued

SEVERINGHAUS, C. W. Anesthetization of whitetailed deer. The Cornell Veterinarian 40(3): 275-282. July 1950.

Injection of nembutal into the saphenous vein was found to be a satisfactory technique for complete anesthesia of deer. Partial anesthesia is not recommended. The author used dosage varying from 1cc. per 6 to 7 pounds of body weight for young fawns, to 1 cc. per 3½ to 5 pounds of body weight for yearling or adult deer. This results in complete relaxation in about 1 to 2 minutes for fawns and in about 3 to 5 minutes for older deer. The animals should be left completely alone when recovering from the anesthetic and where they will not be subjected to chilling or overheating.--Carlton M. Herman.

SEVERINGHAUS, C. W. Threats to our deer herds. West Virginia Conservation 14(9): 11-18, 38-39. December 1950.

A discussion of conditions in New York State.

SEVERINGHAUS, C. W. and others. Variations by age class in the antler beam diameters of white-tailed deer related to range conditions. Transactions of the Fifteenth North American Wildlife Conference. Pages 551-568, illus. 1950.

Measurements of more than 4800 New York State deer during a 5-year period, 1945-1949, showed that the largest antler beam diameters were in the western region where quantity and quality of forage was most nearly adequate, smallest in the central Adirondack region where forage during the average winter was inadequate.

SMITH, ARTHUR D. Sagebrush as a winter feed for deer. The Journal of Wildlife Management 14(3): 285-289, illus. July 1950.

"Sagebrush (Artemisia tridentata) is probably the most important winter deer forage of the intermountain country." However, mule deer that were fed exclusively on sagebrush for 3 weeks or more lost some weight.

SMITH, ARTHUR D. and GAUFIN, DAVID M. The use of movable paddocks in the study of forage preferences of mule deer and livestock. Transactions of the Fifteenth North American Wildlife Conference. Pages 512-517. 1950.

In Utah.

TOLMAN, CARWIN D. Productivity of mule deer in Colorado. Transactions of the Fifteenth North American Wildlife Conference. Pages 589-596, illus. 1950.

MAMMALS--BIG GAME (ELK, MOOSE, ETC.)
(See also MAMMALS--BIG GAME (DEER), Resner; MAMMALS--BIG GAME (ANTELOPE & BIGHORN), Scott and others)

ALLRED, WARREN J. Re-establishment of seasonal elk migration through transplanting. Transactions of the Fifteenth North American Wildlife Conference. Pages 597-610, illus. 1950.
History of elk in western Wyoming and a description of recent transplants.

CASEBEER, ROBERT L.; ROGNRUD, MERLE J.; and BRANDBORG, STEWART. The Rocky Mountain goat in Montana. 107 pages, illus. Montana Fish and Game Commission, Bulletin No. 5. 1950.
This summary of investigations made between 1946 and 1948 includes information on life history, behavior, food habits, distribution, mortality, and management.

CHATELAIN, EDWARD F. Bear-moose relationships on the Kenai Peninsula. Transactions of the Fifteenth North American Wildlife Conference. Pages 224-233. 1950.
290 bear droppings were collected between July 1948 and June 1949. Plant foods were commonest. Among animal foods were both adult and calf moose. Adult remains were scarce, but calf remains occurred in one-sixth of the scats collected in June, in one-fourth of those collected in July and early August, and in none in late August.

COWAN, I. McT.; HOAR, W. S.; and HATTER, J. The effect of forest succession upon the quantity and upon the nutritive values of woody plants used as food by moose. Canadian Journal of Research, D 28(5): 249-271, illus. October 1950.
"The moose, Alces americana, in British Columbia reaches its greatest populations in the young second growth forest areas. Numbers decrease as the forest approaches its climax stage. The decline in population is known to be mainly the result of malnutrition."

FULLER, W. A. Aerial census of northern bison in Wood Buffalo Park and vicinity. The Journal of Wildlife Management 14(4): 445-451, illus. October 1950.
This census was made in February 1949. The estimated total population was 12,000-15,000. There has been a gradual extension of range into previously occupied areas. The calf ratio in 46 groups totaling 323 animals was 8%.

PETERSON, RANDOLPH L. Management of moose. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 71-75. 1949.

SKINNER, CURTIS K. Problems of surplus elk in Yellowstone Park. Wyoming Wild Life 14(6): 22-26. July 1950 (reprinted from the Jackson's Hole Courier of June 1, 1950).

MAMMALS--BIG GAME (ANTELOPE & BIGHORN)

BUECHNER, HELMUT K. Range ecology of the pronghorn on the Wichita Mountains Wildlife Refuge. Transactions of the Fifteenth North American Wildlife Conference. Pages 627-643, illus. 1950.

Antelope never have flourished in this southwestern Oklahoma area, although it was once their native range. This may be due to poor quality habitat, coyote predation, competition with elk, transplant stock coming from a dissimilar area, etc.

GREEN, HUBERT U. The bighorn sheep of Banff National Park. 53 pages, illus. Canada Department of Resources and Development, National Parks and Historic Sites Service, Ottawa. 1949.

This report summarizes the author's observations on the bighorn's life history and ecology from 1938 to 1949, and those of members of the Park Warden Service since 1944. It describes the environment, the sheep and their behavior (breeding, movements, use of mineral licks, range competition, etc.), predators, and diseases.

PUTNAM, EUVERN F. Trapping bighorn sheep in Wyoming. Wyoming Wild Life 14(8): 12-15, 33-36, illus. September 1950.

SCOTT, ROBERT F.; CHATELAIN, EDWARD F.; and ELKINS, WINSTON A. The status of the Dall sheep and caribou in Alaska. Transactions of the Fifteenth North American Wildlife Conference. Pages 612-625, illus. 1950.

Both species have greatly decreased in recent years. The authors discuss the reasons.

SPRINGER, LEONARD M. Aerial census of interstate antelope herds of California, Idaho, Nevada, and Oregon. The Journal of Wildlife Management 14(3): 295-298, illus. July 1950.

"The first four-state antelope census was flown in March 1949."
".....12,350 miles were flown and 13,879 animals were observed. It is believed that about 5,000 of these animals migrate back and forth across state lines."

MAMMALS--FURBEARERS (GENERAL)

YEAGER, LEE E.; DENNEY, RICHARD N.; and HAMMIT, HAROLD C. Survey of the Colorado fur resource. 67 pages, illus. Colorado Game and Fish Department, Current Report 25. September 1949.

This report of a recent survey summarizes information on habitats, sampling methods, fur-takers, the different species, catch, population trends, fur trade, and seasons.

MAMMALS--FURBEARERS (MUSKRAT)

BEER, JAMES R. and TRUAX, WAYNE. Sex and age ratios in Wisconsin muskrats. The Journal of Wildlife Management 14(3): 323-331, illus. July 1950.

"This paper presents sex and age data from 24,082 fall and early winter trapped muskrats and sex data from 1,149 nestlings examined in southern and central Wisconsin from 1946 through 1948 and reviews the data in the literature." The sexes are nearly even at birth; shift to about 140 males per 100 females at 3 weeks old; and are nearly even again during the following breeding season. Females produced an annual average of $15\frac{1}{2}$ young. Age ratios in the Wisconsin muskrats was 359 young per 100 adults. Best utilization of Wisconsin marsh was when the ratio was 400-500 young per 100 adults.

BELLROSE, FRANK C. The relationship of muskrat populations to various marsh and aquatic plants. The Journal of Wildlife Management 14(3): 299-315, illus. July 1950.

This study aimed to determine (1) plant food preferences of muskrats in winter and (2) relative populations supported by different marsh plants in Illinois. The author rates 14 species or groups of species according to preference as food; 9 according to the density of populations they support. He discusses the influence of other conditions.

DOZIER, HERBERT L. Muskrat trapping on the Montezuma National Wildlife Refuge, New York, 1943-1948. The Journal of Wildlife Management 14(4): 403-412, illus. October 1950.

More than 30,000 muskrats were trapped during the period. They were nearly equally divided between the sexes. In 1944, the first year of intensive trapping, 5-pound animals were taken and the average was $3\frac{1}{2}$ pounds. In 1948 the average was less than 3 pounds. An abundant supply of Typha glauca was the greatest factor in producing large fat muskrats.

GASHWILER, JAY S. Sex ratios and age classes of Maine muskrats. The Journal of Wildlife Management 14(4): 384-389. October 1950.

"Sex and age data were secured on 5,429 Maine muskrats from 1945 to 1948." The figures ".....suggest a disproportionate mortality of males during the winter and spring periods." A fall population of 951 muskrats averaged 5.7 young for each female.

McLEOD, J. A. Some aspects of muskrat management in Manitoba. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 64-71. 1949.

MAMMALS--FURBEARERS (MUSKRAT)--Continued

MEYER, MARVIN C. and REILLY, JAMES R. Parasites of muskrats in Maine. The American Midland Naturalist 44(2): 467-477. September 1950.

This paper lists the parasites found in 127 muskrats in 3 counties of Maine. It also presents a check list of parasites, exclusive of protozoa, previously reported from muskrats in North America, together with all the literature references pertaining thereto. Under a section headed "Suggestions for Management", the authors discuss the value of certain practices, particularly burning and water level manipulations. These are presented chiefly from the standpoint of control of specific intermediate hosts in multiple host infections. No evaluation is given on the degree of pathogenicity of any of the parasites nor is there any indication of possible morbidity or mortality as a result of the infections.--Carlton M. Herman.

TRUAX, WAYNE C. The muskrat harvest on Horicon Marsh. Wisconsin Conservation Bulletin 15(7): 12-14, illus. July 1950.

Since 1943, higher water levels, a greater abundance of food, creation of new range, and wise harvesting have multiplied the harvest many-fold. The author describes the annual harvest by 30-40 trappers.

WILLIAMS, ROGER M. Study shows improvement at Gray's Lake could triple present muskrat population. Idaho Wildlife Review 3(2): 12-14, illus. October-November 1950.

Gray's Lake in Bonneville and Caribou Counties, Idaho, is a 22,000-acre cattail and bulrush marsh. In 1949 the muskrat population was low. Its increase depends on stopping the removal from the lake of water for irrigation and opening up dense vegetation by digging or blasting canals.

MAMMALS--FURBEARERS (NUTRIA & RACCOON)

ATWOOD, EARL L. Life history studies of nutria, or coypu, in coastal Louisiana. The Journal of Wildlife Management 14(3): 249-265, illus. July 1950.

This detailed article is based on a January 1946 to April 1948 study in Cameron Parish. The best coypu range is fresh-water marshes that are poor producers of muskrats. Food supply is a major factor affecting reproduction.

GOLDMAN, EDWARD A. Raccoons of North and Middle America. U. S. D. I., Fish and Wildlife Service, North American Fauna 60. 153 pages, illus. 1950. 45¢ from Government Printing Office.

An account of the habits, economic status, and general characters of raccoons; followed by a taxonomic treatment of 32 species and subspecies.

GUENTHER, STANLEY E. Nutria. [Washington State] Game Bulletin 2(1): 5, illus. January 1950.

Nutria occur in several places in Washington. They have competed with muskrats for food; and the State Game Department has encouraged trappers to take all they can. In May 1949 the population was the lowest in 8 or 10 years.

MAMMALS--FURBEARERS (NUTRIA & RACCOON)--Continued

SANDERSON, GLEN C. Methods of measuring productivity in raccoons. The Journal of Wildlife Management 14(4): 389-402, illus. October 1950.

The author summarizes for Missouri raccoons and raccoon pelts several ways of determining sex and age. "Juvenile mortality is very low between birth and summer, but it amounts to approximately 50 per cent during the first year. Most of this mortality is believed to be the result of hunting."

TYSON, EDWIN L. Summer food habits of the raccoon in southwest Washington. Journal of Mammalogy 31(4): 448-449. November 1950.

29 raccoon stomachs were collected between July 13 and September 28, 1946 on the Willapa Harbor National Wildlife Refuge, Washington. They contained tidewater and mudflat animals, such as mollusks and crustaceans. There was an absence of plant food in the stomachs, yet several kinds of edible berries were available.--Lloyd W. Swift.

MAMMALS--FURBEARERS (FOXES & WOLVES)

COWAN, I. McT. The control of wolves and coyotes. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 49-57. 1949.

JAEGER, EDMUND C. The coyote as a seed distributor. Journal of Mammalogy 31(4): 452-453. November 1950.

Coyotes feed on date seeds in orchards of the Coachella Valley in California. Feces collected in the Little San Bernardino Mountains, 10-15 miles from the orchards, contained date seeds and suggests that fruit-eating coyotes may aid in the natural distribution of certain plants.--Lloyd W. Swift.

OMAND, D. N. The bounty system in Ontario. The Journal of Wildlife Management 14(4): 425-434. October 1950.

This is a review of the bounty paid on wolves since 1905. It seems to have had little effect on either the wolf or deer populations.

SCOTT, THOS. G. Food remains in stomachs and intestines of Iowa red foxes. The Journal of Wildlife Management 14(4): 478-480. October 1950.

472 stomachs and intestinal tracts collected in 1938-1941, 1947, and 1948 contained a large number of items. Cottontails and rodents occurred most frequently.

MAMMALS--FURBEARERS (MARTEN, OPOSSUM, ETC.)

COWAN, I. McT. and MACKAY, R. H. Food habits of the marten (Martes americana) in the Rocky Mountain region of Canada. The Canadian Field-Naturalist 64(3): 100-104. May-June 1950.

This article discusses the contents of 197 scats and 3 stomachs taken between 1943 and 1946. Martens were abundant during that period, but none of the small prey species was at a peak. Mice comprised two-thirds of all food (red-backed mice one-fourth), but a wide variety of other items were eaten. Neither red squirrels nor varying hares were taken in proportion to their availability.

FRYE, O. EARLE; PIPER, BILL; and PIPER, LES. The disappearing panther. Florida Wildlife 5(5): 8-9, 31-32, illus. October 1950.

From its previous status of "varmint" the Florida puma has progressed to that of a protected game animal. Its present predation on cattle and horses in Florida is considered slight, and its predation on free ranging hogs is considered desirable. Stock killers can be destroyed individually. The puma eats almost any kind of animal, but the bulk of the diet in the Everglades may be raccoons. The puma in Florida is largely confined to the Everglades, and even here there are probably not more than 20 individuals. The gestation period is about 95 days, birth is usually in February, and the young weigh about 1¼ pounds. Florida pumas breed at the age of two years. Mature females average around 100 pounds, males around 140.--W.H.Stickel.

NEAL, ERNEST. The badger. 158 pages, illus. Collins, 14 St. James's Place, London. 1948. 12 shillings and sixpence.

This account of the Eurasian badger (Meles meles) is based on many hours of watching by the author and several of his students, mostly between 1943 and 1947. It is well written and is beautifully illustrated with photos, maps, and drawings. The principal subjects discussed are a general description, classification and distribution, ecology, behavior, food, hibernation, reproductive cycle, development, life underground, folk lore, and methods of study.

WISEMAN, GEORGE L. and HENDRICKSON, GEORGE O. Notes on the life history and ecology of the opossum in southeast Iowa. Journal of Mammalogy 31(3): 331-337. August 1950.

Research work was done from January to June 1942 on land in southeastern Iowa, most of which was under intensive cultivation. 24 opossums were live-trapped; 23 used dens were located; 87 scats were examined. Findings on such items as a night's travel, effect of cold on travel, breeding data, and food habits are discussed.--Lloyd W. Swift.

YEAGER, LEE E. Implications of some harvest and habitat factors on pine marten management. Transactions of the Fifteenth North American Wildlife Conference. Pages 319-334. 1950.

The pine marten has been little studied. The annual catch is declining, except in British Columbia and possibly a few other places. More males than females are trapped. Lumbering is steadily reducing marten range.

MAMMALS--RODENTS (GENERAL)

BODENHEIMER, F. S. Ecological and physiological studies on some rodents. Physiologia Comparata et Oecologia 1(3/4): 376-389, illus. October 1949.
"Data are presented on seasonal fertility, longevity, scale of activity, preference temperature, etc. for Meriones tristrami, Acomys dimidiatus and Mus gentilis [in Palestine]. The longevity in all these species is distinctly shorter in the females than in the males." "The daily rhythm of activity of 8 species of wild rodents shows two major peaks, one at sunset [sunrise?], one at sundown,....." "The growth rate of three species of rodents is discussed. They all reach the peak of their body weight in the second year of their life-span."

CALHOUN, JOHN B., editor. Annual report of census made in 1949. 90 pages, illus. North American Census of Small Mammals, Release No. 3. April 1950.

DYKSTRA, WALTER W. New techniques and developments in rodent control. Pest Control 18(12): 9-14, 39, illus. December 1950.
A detailed discussion of the use of warfarin; and comments on other rodenticides, repellents, and rodent population trends.

FITCH, HENRY S. A new style live-trap for small mammals. Journal of Mammalogy 31(3): 364-365, illus. August 1950.

GUNDERSON, HARVEY L. A study of some small mammal populations at Cedar Creek Forest, Anoka County, Minnesota. Minnesota Museum of Natural History, Occasional Papers No. 4. 49 pages. October 1950.
Population fluctuations of Microtus pennsylvanicus, Clethrionomys gapperi, Zapus hudsonius, and Peromyscus leucopus were followed through a year's live-trapping on a 2.8-acre plot in a cedar bog. Cover type variations in the trapping plot are correlated with species and abundance of the small mammals. Home range data and life history notes are given for some of the forms.--Lucille F. Stickel.

LINDUSKA, J. P. Ecology and land-use relationships of small mammals on a Michigan farm. 144 pages, illus. Game Division, Department of Conservation, Lansing, Mich. 1950.
Most of this study was carried on in the early 1940's at the Rose Lake Wildlife Experiment Station, Clinton Co., Michigan. It deals principally with the population dynamics of prairie deermice, meadow voles, and house mice in fields; and fox, red and flying squirrels, chipmunks, white-footed mice, and short-tailed shrews in farm woodlots.

MAMMALS--RODENTS (MICE & RATS)

DAVIS, DAVID E. The mechanics of rat populations. Transactions of the Fifteenth North American Wildlife Conference. Pages 461-465, illus. 1950.
"This paper summarizes our present knowledge concerning the causes of a decline in the rat population of Baltimore from 400,000 in 1944 to 60,000 in 1949." "An artificially reduced population increases till it reaches equilibrium....." "The physical environment is the fundamental limiting factor; predation and competition usually remove only the surplus."

DYKSTRA, WALTER W. A review of the history, ecology and economic importance of house mice. Pest Control 18(8): 9-14, illus. August 1950.
".....accumulated widespread damage and relationship to diseases makes the need for better control a matter of considerable importance."

EMLEN, J. T., JR. How far will a mouse travel to a poisoned bait? Pest Control 18(8): 16-20, illus. August 1950.
".....for the great majority of poisons the limited cruising range displayed by house mice indicates the desirability of a large number of baits well distributed through all infested portions of a building."

HAYNE, DON W. Mouse populations in orchards and a new method of control. The Quarterly Bulletin 33(2): 160-168, illus. November 1950.
".....it is necessary that each orchard be inspected for the presence of mice, even in times of generally low abundance." "Poisoning orchard mice with zinc-phosphide-poisoned cracked corn distributed by a hand seeder is an effective control measure and requires less labor than other methods. As with all poisons there is some danger to wildlife."

LAURIE, E. M. O. The reproduction of the house-mouse (Mus musculus) living in different environments. Proceedings of the Royal Society. Series B, Biological Sciences 133(872): 248-281, illus. August 1946.
8207 wild mice were studied between January 1942 and July 1943. They came from urban habitats, flour buffer depots, cold stores, and corn-ricks. They were found to breed throughout the year. Highest productivity was in the rick mice. Those in cold storage apparently lived normally and bred the year around at a temperature never above 15° F.

SHAPIRO, JACOB. Notes on population dynamics of Microtus and Blarina with a record of albinism in Blarina. The Journal of Wildlife Management 14(3): 359-360. July 1950.
High population of Blarina and low of Microtus in an area near Syracuse, N. Y. in the summer of 1948.

MAMMALS--RODENTS (MICE & RATS)--Continued

WORTH, C. BROOKE. Field and laboratory observations on roof rats, Rattus rattus (Linnaeus), in Florida. Journal of Mammalogy 31(3): 293-304, illus. August 1950.

In 1948 and 1949 three subspecies occurred in Hillsborough County, where they outnumbered Norway rats about 5 to 1. Norway rats were more frequently infested with ectoparasites than roof rats, but roof rats had more kinds. Feral roof rats were often infested with ectoparasites from native mammals.

MAMMALS--RODENTS (SQUIRRELS, ETC.)

CHRISTISEN, DONALD M. Are squirrels expendable? Missouri Conservationist 11(8): 1-3, illus. August 1950.

A description of conditions in Missouri where, as elsewhere, the quality of hunting depends on how the land is used.

ECKE, DEAN H. and JOHNSON, CLIFFORD W. Sylvatic plague in Park County, Colorado. Transactions of the Fifteenth North American Wildlife Conference. Pages 191-196. 1950.

"Plague in Park County, Colorado, was first discovered in the summer of 1945, and spread across the county through the prairie-dog population in 2 years. In less than 4 years, it killed practically all of the 'dogs' on about 627,000 acres." There was also heavy mortality among Wyoming ground squirrels. "Game and fur species apparently were not affected." Two species of fleas were the principal vectors.

SPENCER, DONALD A. Porcupines, rambling pincushions. The National Geographic Magazine 98(2): 247-264, illus. August 1950.

An entertainingly written and beautifully illustrated account of porcupine behavior.

MAMMALS--RABBITS
(See also BIRDS--UPLAND GAME (GENERAL), Ginn)

ALLIN, A. E. European hare introduced into the District of Thunder Bay, Ontario. The Canadian Field-Naturalist 64(3): 122-124. May-June 1950.

"European Hares from the Meaford area of Ontario were introduced into the Lakehead area of Thunder Bay District, Ontario, in 1942, 1943 and 1945." "Some of these animals survived and apparently multiplied as they have been noted over a considerable area and several have been killed."

CHITTY, HELEN. The snowshoe rabbit enquiry, 1946-48. The Journal of Animal Ecology 19(1): 15-20, illus. May 1950.

For this period, reports were analyzed from more than 500 observers in Canada, the United States, and Alaska. By May 1948 widespread recovery from the sharp decline in 1942-1945 had begun over most of southwest Canada and western United States. In the maritime provinces and northern New England rabbits were near a peak. In Yukon and nearby Alaska the trend was downward.

MAMMALS--RABBITS--Continued

HEDIGER, H. Die zucht des feldenhasen (Lepus europaeus Pallas) in gefangenschaft [Rearing field hares in captivity]. Physiologia Comparata et Oecologia 1(1): 46-62, illus. April 1948.

This hare has rarely been reared successfully in captivity due to its extreme excitability and susceptibility to parasitism when caged. It has been maintained through three successive generations at the Basel Zoological Gardens in specially designed cages. The gestation period, previously unknown, was established as 42 days. Superfoetation was demonstrated as a normal phenomenon.--Keith Reynolds.

KIRKPATRICK, CHARLES M. Crow predation upon nestling cottontails. Journal of Mammalogy 31(3): 322-327. August 1950.

Seven eye-witness accounts are cited of crow predation on nestling cottontails. All observations were made in the spring and in situations where ground cover was of low grade.--Lloyd W. Swift.

SALMAN, D. H. On the home range of cottontails. Physiologia Comparata et Oecologia 1(2): 95-109. February 1949.

This is a review of the literature on Sylvilagus floridanus. It discusses cover, food, space, exploration, familiarity, home-site, communications, and the interaction of these factors; also sex, territorial behavior and gregariousness, incompatibility, territorial defense, territorial behavior of males, female imcompatibility, and heterosexual tolerance. The author concludes, among other things: "Further progress in ecology seems blocked by our present ignorance concerning cottontail behavior,....."

MAMMALS--INSECT-EATERS

(See MAMMALS--RODENTS (GENERAL), Linduska; MAMMALS--RODENTS (MICE & RATS), Shapiro)

MAMMALS--MARINE

BERTRAM, G. C. L. Pribilof fur seals. Arctic 3(2): 75-85, illus. August 1950.

This article is based on a visit of 1½ months during the summer of 1949. It summarizes (1) the history of the herd, (2) the biological basis for its exploitation, (3) the present regime, and (4) the future and its problems.

DUNBAR, M. J. The Pinnipedia of the Arctic and Subarctic. 22 pages. Fisheries Research Board of Canada, Bulletin No. 85. 1949.

3 families comprise 3 subspecies of fur seals, 2 species of walrus, and 7 species of earless or hair seals. There is information on form, life history, behavior, relation to man, and physiology.

MAMMALS--MARINE--Continued

SCHEFFER, VICTOR B. The food of the Alaska fur seal. Transactions of the Fifteenth North American Wildlife Conference. Pages 410-420, illus. 1950.
This information is summarized mostly from published accounts of studies made in the North Pacific Ocean and Bering Sea during the past 50 years.

SCHEFFER, VICTOR B. Probing the life secrets of the Alaska fur seal. Pacific Discovery 3(5): 22-30, illus. September-October 1950.

SCHEFFER, VICTOR B. Winter injury to young fur seals on the northwest coast. California Fish and Game 36(4): 378-379, illus. October 1950.
"In January and February, 1950, the bodies of young fur seals (Callorhinus ursinus) washed ashore in great numbers [700 or more] along the seacoast of Washington and Oregon." 29 of them had been tagged in the Pribilof Islands in late summer of 1949. Severe and prolonged storms are believed to be the cause of the unusual mortality.

THOMPSON, SETON H. Alaska fishery and fur-seal industries: 1947. 78 pages, illus. U. S. D. I., Fish and Wildlife Service, Statistical Digest No. 20. 1950. 25¢ from Superintendent of Documents.

BIRDS--BEHAVIOR

LINCOLN, FREDERICK C. Migration of birds. U. S. D. I., Fish and Wildlife Service, Circular 16. 102 pages, illus. 1950. 30¢ from Government Printing Office.
Some of the subjects discussed are theories of migration; when, how and where birds migrate; migration routes and their evolution; and the relation of weather to migration. Drawings show migration routes and summer and winter ranges of several species.

BIRDS--BIBLIOGRAPHY

STEPHENS, T. C. An annotated bibliography of South Dakota ornithology. 28 pages. Author, Sioux City, Iowa. 1945. $1.00.
More than 270 entries are listed chronologically from 1858 through 1944.

BIRDS--COMMUNITIES & HABITATS

DUMAS, PHILIP C. Habitat distribution of breeding birds in southeastern Washington. The Condor 52(5): 232-237. September-October 1950.
On the basis of field work in June and July 1948, the author describes 4 biotic areas (sagebrush, grassland, montane forest, subalpine) and tabulates density indices for the species of birds found in various habitats in each biotic area.

BIRDS--COMMUNITIES & HABITATS--Continued

HAYWARD, BRUCE. Prairie fires and nesting birds. The Flicker 22(2): 35-38. June 1950.
Report of a 56-day study in the spring of 1949 of a slough just northwest of Minneapolis. Midway in the study most of the habitat was destroyed by fire. The author describes the many changes in vegetation and bird life that followed.

SVÄRDSON, GUNNAR. Competition and habitat selection in birds. Oikos 1(2): 157-174, illus. 1949.
"Some cases are described in which related bird species replace each other geographically or ecologically in Sweden." "The coincidence of morphological and ecological subspecies is discussed and some Swedish populations of birds, displaying different habitats, are reviewed."

WEBSTER, J. DAN. Altitudinal zonation of birds in southeastern Alaska. The Murrelet 31(2): 23-26. May-August 1950.

BIRDS--DISEASES

BARGER, EDGAR HUGH and CARD, LESLIE ELLSWORTH. Diseases and parasites of poultry. Fourth edition. 400 pages, illus. Lea & Febiger, Philadelphia, Pa. 1949. $4.00.

BIRDS--FAUNAS & MANUALS

BOOTH, ERNEST SHELDON. Birds of the West. New edition. 402 pages, illus. Stanford University Press, Stanford, Calif. 1950. $6.00.
8 color plates show many species.
See Wildlife Review No. 61, page 26 for a reference to the first edition.

FRIEDMANN, HERBERT; GRISCOM, LUDLOW; and MOORE, ROBERT T. Distributional check-list of the birds of Mexico. Part I. 202 pages, illus. Cooper Ornithological Club, Pacific Coast Avifauna No. 29. June 1950. $4.00.
This volume covers the families from tinamous to hummingbirds.

GREY, JOHN H., JR. Birds of the Cape Henry region. The Raven 21(7 through 10): 38-95. July through October 1950.
An annotated list of the 291 species and subspecies that have been found in Princess Anne County and eastern Norfolk County, Virginia (excluding Dismal Swamp).

KITCHIN, E. A. Birds of the Olympic Peninsula. 262 pages, illus. Olympic Stationers, Port Angeles, Wash. 1949. $3.50.
Personal observations of habits and habitats enliven this account of 261 species of birds in northwestern Washington.

BIRDS--FAUNAS & MANUALS--Continued

SPRUNT, ALEXANDER, JR. A list of the birds of the Dry Tortugas Keys, 1857-1949. The Florida Naturalist 23(3 to 5): 49-60, 73-78, 105-111, illus. April to October 1950.
Notes on 179 kinds of birds.

TOUT, WILSON. Lincoln County birds, Lincoln County, Nebraska. 191 pages, illus. The Author, North Platte, Nebr. 1947.
This is the result of the author's 40 years of observations, plus the records of more than 200 other people. The book itself was developed during a period of 15 years. The information is definite, detailed, and interesting.

WILLIAMS, ARTHUR B., editor. Birds of the Cleveland region. Scientific Publications of the Cleveland Museum of Natural History 10: 1-215, illus. June 1950. $2.00.
This is mainly an annotated list of the species reported within 30 miles of the Cleveland Public Square. In addition, there are a brief description of the region, a bibliography, a history of bird study in the region, a gazetteer, and special seasonal and locality lists.

BIRDS--MANAGEMENT

GABRIELSON, IRA N. and others. Report of the A. O. U. committee on bird protection, 1949. The Auk 67(3): 316-324. July 1950.

McELROY, THOMAS P., JR. Handbook of attracting birds. 163 pages, illus. Alfred A. Knopf, New York. 1950. $3.00.
This book describes ways of attracting songbirds with food, water, plantings, and nesting facilities; ways of attracting upland game birds and waterfowl; and ways of planning for birds in small gardens, on farms and estates, and in sanctuaries.

BIRDS--POPULATIONS

FISHER, HARVEY I. Populations of birds on Midway and the man-made factors affecting them. Pacific Science 3(2): 103-110. April 1949.

ODUM, EUGENE P. Bird populations of the Highlands (North Carolina) Plateau in relation to plant succession and avian invasion. Ecology 31(4): 587-605, illus. October 1950.

STEWART, ROBERT E., editor. Fourteenth breeding-bird census. Audubon Field Notes 4(6): 295-306, illus. December 1950.
14 censuses from uniform habitats in 11 different states, 7 from mixed habitats in 5 different states, 1 of wide-ranging species on a large area in Maryland, 1 from tropical prairie in southern Mexico.

BIRDS--POPULATIONS--Continued

STEWART, ROBERT E., editor. Winter bird-population study. Audubon Field Notes 4(3): 220-228. June 1950.
Studies of 18 areas comprised grassland, scrub, forest, and mixed habitats in Ontario, 9 states, and the District of Columbia.

WILSON, GORDON. Bird changes in Mammoth Cave National Park, 1938-1949. The Kentucky Warbler 26(2): 17-24, illus. May 1950.

BIRDS--WATERFOWL

ANONYMOUS. The story of Delta Waterfowl Research Station: a review of the purpose, history, objectives and achievements of a research project on the Prairie Provinces of Canada. 23 pages, illus. American Wildlife Foundation, Wire Bldg., Washington 5, D. C. 1950.
The Station was established in 1931 on a 36,000-acre marsh at the south end of Lake Manitoba. Some of its accomplishments are the development of a new method of inventorying waterfowl on their breeding grounds, collecting data on brood movements, managing diving duck populations, determining year to year movements of the same individual ducks, and investigating renesting and the distribution of breeding populations.

BELLROSE, FRANK C. Mississippi flyway problems, projects, and prospects. Transactions of the Fifteenth North American Wildlife Conference. Pages 123-132, illus. 1950.
"If the forces of habitat destruction can be abated, and if twice the present amount of waterfowl management areas can be established, then the future of waterfowling in the Mississippi Flyway is assured."

BENNETT, EUGENE D. Pacific flyway problems, projects, and prospects. Transactions of the Fifteenth North American Wildlife Conference. Pages 139-143. 1950.
"Waterfowl on the Pacific Flyway appear to be holding up much better than on the other principal flyways. Our problem is what to do with the ducks while they are here." "Maintaining wintering grounds in the West is one of the burning problems....." "Crop depredations are becoming increasingly troublesome ....."

BROLEY, JEANNE. Identifying nests of the Anatidae of the Canadian prairies. The Journal of Wildlife Management 14(4): 452-456, illus. October 1950.
"This article includes natural size photographs, also a key, based on the dual system of feathers and down, for identification of wildfowl nests on the prairies of Manitoba, Saskatchewan, and Alberta." It deals with 24 species.

CANFIELD, THOMAS H. Sex determination of geese. 6 pages, illus. Minnesota Agricultural Experiment Station, Bulletin 403. March 1949.
Domestic geese.

BIRDS--WATERFOWL--Continued

CRAIG, FRANK R. Newcastle disease. Wildlife in North Carolina 14(12): 17-18, illus. December 1950.

In the fall of 1949 an outbreak on a preserve in Wake Co., North Carolina resulted in the death of 85% of a flock of native and exotic waterfowl. Canada geese and blue geese were the only species not seriously affected.

DAY, ALBERT M. North American waterfowl. Transactions of the Fifteenth North American Wildlife Conference. Pages 99-104. 1950.

The author discusses changes in the population since 1948 and suggest ways of reducing disease, maintaining habitat, and making regulations more effective.

DeBUSK, KELLY. Central flyway problems, projects, and prospects. Transactions of the Fifteenth North American Wildlife Conference. Pages 133-138. 1950.

"Prospects for materially increasing and maintaining waterfowl populations are not encouraging." "There is no need for emphasis on waterfowl production, or, for that matter, any game production, unless the wintering areas are properly managed to sustain them."

EARL, JOHN P. Production of mallards on irrigated land in the Sacramento Valley, California. The Journal of Wildlife Management 14(3): 332-342, illus. July 1950.

This study was made in 1948 on a 19,000-acre ranch in Yolo County. 50-75 miles of irrigation ditch contained water. Breeding territories were along the ditches. Altogether, there were about 400 pairs of birds. Of 60 nests found, about half were in wheat. Others were on banks, along roads, and in pasture, rice, barley, and swales. About half of the nests were failures--more than half of them due to predation. Each pair produced about 3 young. Rice acreage is considered the key to mallard production in the Sacramento Valley; and the total production for the year was estimated as 65,000 young.

ELDER, WILLIAM H. Measurement of hunting pressure in waterfowl by means of X-ray. Transactions of the Fifteenth North American Wildlife Conference. Pages 490-503, illus. 1950.

The author describes a portable X-ray outfit with which 4 men can examine 250 ducks per hour for number, size, and location of shot in flesh or gizzard. Of more than 3600 adult dabbling ducks fluoroscoped in Manitoba and Saskatchewan during the summers of 1948 and 1949, one-fourth of the drake mallards, one-fifth of the pintails, one-eighth of the gadwalls, one-tenth of the shovellers and baldpates, and one-fourteenth of the teal were carrying body shot. Female mallards, pintails, and blue-winged teal contained shot less frequently than did males. During the fall more and more juvenile drakes were found carrying shot as the season progressed.

BIRDS--WATERFOWL--Continued

EVANS, THOMAS R. Potholes--producers of ducks--and dollars too! The Conservation Volunteer 13(77): 14-19. July-August 1950 (reprinted from The Dakota Farmer, April 15, 1950).

The economics of recent drainage projects in the Dakotas and Minnesota is contrasted with marsh management for ducks and muskrats in Wisconsin, South Dakota, and Minnesota.

FANSET, GEORGE R. Meeting western Canadian waterfowl problems. Transactions of the Fifteenth North American Wildlife Conference. Pages 106-110. 1950.

A review of the work of Ducks Unlimited in improving conditions in the Prairie Provinces.

HARTMEISTER, F. A. and HANSEN, MARTIN J. Lead shot and waterfowl poisoning. Wisconsin Conservation Bulletin 15(8): 16-18, illus. August 1950.

Systematic samplings of bottom materials in 3 Wisconsin duck-hunting areas in the winter of 1949 showed a dangerous amount of shot on the mostly sand and gravel bottoms of 2 lakes, little on the peat bottom of the other area.

HEWITT, OLIVER H. Recent studies of blue and lesser snow goose populations in James Bay. Transactions of the Fifteenth North American Wildlife Conference. Pages 304-308, illus. 1950.

In 1946 and 1947, while Canadian government officer on duty in James Bay to observe waterfowl hunting, the author obtained information on flock organization, adult-juvenile ratios, and vulnerability and kill. In 1947 the use of aircraft by non-resident hunters was great enough to cause the government to considerably restrict their use the next year. However, under present conditions, the author considers the kill by both native and non-resident hunters to be not detrimental to the goose population.

JEFFREY, ROBERT. Snow goose flock of the Skagit flats. Game Bulletin 2(3): 3, illus. July 1950.

During the past 10 years, 20-40 thousand snow geese have wintered (early October to late April) on this Puget Sound area. An increase of low marsh, due to silt deposition in the bays, has apparently caused an increase in birds since early in the century. They provide sport and spectacle to thousands of people; and they did considerable damage to winter grains and clover before means of frightening them were developed.

JORDAN, JAMES S. and BELLROSE, FRANK C. Shot alloys and lead poisoning in waterfowl. Transactions of the Fifteenth North American Wildlife Conference. Pages 155-168. 1950.

"In 1948, the Illinois Natural History Survey, the Western Cartridge Company, Division of Olin Industries, Inc., and the College of Veterinary Medicine, University of Illinois, undertook a comprehensive investigation of lead poisoning in waterfowl." None of several alloys has shown promise of solving the problem. However, supplements of coontail in the diet of experimental mallards greatly reduced the effect of ingested lead.

BIRDS--WATERFOWL--Continued

KLEINSCHNITZ, FERD and FLINN, WILLARD. Duck trapping in Colorado. Colorado Conservation Comments 10(15): 17-19, 25, illus. October 1950.
The authors state its purposes and describe its methods.

LEE, FORREST B. and FARMES, ROBERT. Minnesota waterfowl banding activities and returns, 1949-50. The Flicker 22(3): 78-89, illus. September 1950.
The data are presented largely through maps and tables.

LEE, FORREST B. and FARMES, ROBERT E. Waterfowl banding in Minnesota. The Conservation Volunteer 13(78): 28-34, illus. September-October 1950.
458 banded waterfowl were recovered in Minnesota in 1949. Tables show where they were banded, the years in which they were banded, and when they were shot.

LINCOLN, FREDERICK C. The American brant--living bird or museum piece? Audubon Magazine 52(5): 282-287, illus. September-October 1950.
Due to depletion of eelgrass, their main winter food on the Atlantic coast of the United States, brant were seriously reduced in the 1930's. Several years of complete protection and forced change in food habits have helped to tide them over the period in which eelgrass has been partially recovering.

MANN, GRADY E. Reverse fall migration. The Journal of Wildlife Management 14(3): 360-362, illus. July 1950.
In the fall of 1948, direct observations and banding returns showed a pronounced northward flight of waterfowl from the Lower Souris National Wildlife Refuge in North Dakota. There were 14 banding returns from Manitoba--one from 175 miles due north of the Refuge. The author discusses hunting pressure and weather as possible causes.

MILLER, HERBERT J. Managed hunting on a public marsh. Transactions of the Fifteenth North American Wildlife Conference. Pages 505-511. 1950.
"Five years of operation of Pte. Mouille [Monroe Co., Michigan] has shown that a public marsh can be managed to provide sport for a large number of hunters [5300 a year on 1700 acres] and that it also can provide for varied recreational uses." "Based on public use and yield of game the purchase of high value marsh property seems justified if carefully managed."

MUNRO, DAVID A. Review of waterfowl conditions in Canada. Transactions of the Fifteenth North American Wildlife Conference. Pages 94-98. 1950.

ROSEN, MERTON N. and BISCHOFF, ARTHUR I. The epidemiology of fowl cholera as it occurs in the wild. Transactions of the Fifteenth North American Wildlife Conference. Pages 147-153, illus. 1950.
Every winter for the past 6 years waterfowl have died of fowl cholera in the region between San Francisco Bay and the lower Sacramento Valley. "Circumstantial evidence indicates that transmission may be directly from a domestic source such as a garbage dump that is accessible to the scavenger action of gulls."

BIRDS--WATERFOWL--Continued

SOWLS, LYLE K. Techniques for waterfowl-nesting studies. Transactions of the Fifteenth North American Wildlife Conference. Pages 478-487, illus. 1950.
The author describes the various ways of locating nests, trapping hens, and marking birds that have been used at Delta, Manitoba.

STEENIS, JOHN H. Waterfowl habitat management in the Tennessee Valley. 14 pages. U. S. D. I., Fish and Wildlife Service, Special Scientific Report: Wildlife No. 7. November 1950.
Methods of habitat improvement that were especially effective in increasing waterfowl in the TVA region were (1) constructing and managing sub-impoundments to develop either stable marsh and aquatic habitats or seasonally dewatered areas, (2) producing unflooded agricultural crops, (3) controlling erosion, (4) planting islands and mud flats, (5) improving marginal marsh vegetation, and (6) planting submerged aquatics in areas of limited fluctuation.

WARREN, CARL R. Survey of Pennsylvania migratory waterfowl. 35 pages, illus. Pennsylvania Game Commission, Harrisburg. 1950.
There is little waterfowl nesting or hunting in Pennsylvania but many birds migrate through the State. The best sections for waterfowl are the glaciated Northwest and Northeast and along the big rivers. The author emphasizes the role of farming in the management of waterfowl in the Pymatuning and Reading areas, and recommends certain impoundments and other practices for producing more ducks and geese.

WIEBE, A. H.; CADY, EARL R.; and BRYAN, PAUL. Waterfowl on the Tennessee River impoundments. Transactions of the Fifteenth North American Wildlife Conference. Pages 111-117. 1950.
By means of extra development work and changes in operation, impoundments for navigation, flood control, and power production have helped the waterfowl refuge program and provided hunting without substantially interfering with the primary objectives of the projects.

WILLIAMS, CECIL S. Atlantic flyway problems, projects, and prospects. Transactions of the Fifteenth North American Wildlife Conference. Pages 118-122. 1950.
"Joint undertakings by the various states, the Fish and Wildlife Service, Canadian authorities and private conservation agencies will pay the biggest dividends in ducks and sport."

YOCOM, CHARLES F. Weather and its effect on hatching of waterfowl in eastern Washington. Transactions of the Fifteenth North American Wildlife Conference. Pages 309-318, illus. 1950.
"Estimated ages for 1,907 broods of these 10 species [the commonest of a total of 19 breeders in the region] were obtained during the 3-year period [1947 through 1949]." Excessive rainfall in May 1948 apparently helped to retard the hatching of early broods.

BIRDS--FISH-EATERS

ALEXANDER, W. B. The index of heron population, 1949. British Birds 43(3): 78-80. March 1950.
Figures from 111 heronies show a 35% increase from 1948. The preceding two winters were mild.

FISHER, JAMES. Bird recognition. I: Sea-birds & waders. 190 pages, illus. Penguin Books, Harmondsworth, Middlesex, England. 1947. 2 shillings and sixpence.
This is the first of a 3-volume series of field guides to British birds. It comprises keys; descriptions of recognition marks, breeding, distribution, and movements; drawings of the individual birds; detailed maps of British distribution; and charts of seasonal distribution.

LOW, JESSOP B.; KAY, LEE; and RASMUSSEN, D. I. Recent observations on the white pelican on Gunnison Island, Great Salt Lake, Utah. The Auk 67(3): 345-356, illus. July 1950.
Through the years the population on this island is estimated to have varied from 3000 to 6600 adult birds. 20 separate nesting colonies have been counted. Their food is non-game fish. Protection is needed on the nesting-ground islands in Great Salt Lake.

SCATTERGOOD, LESLIE W. Observations on the food habits of the double-crested cormorant, Phalacrocorax a. auritus. The Auk 67(4): 506-508. October 1950.
35 stomachs from Maine in 1944, 5 from Florida in 1948, and regurgitations of young from Maine in 1949 contained a small proportion of commercially important fish.

WINN, HOWARD ELLIOTT. The black guillemots of Kent Island, Bay of Fundy. The Auk 67(4): 477-485, illus. October 1950.

BIRDS--CRANES & RAILS

ENGELING, GUS A. King and clapper rail. Texas Game and Fish 8(11): 2-3, illus. October 1950.
Their behavior and habitat in southern Texas.

HALL, HENRY MARION. Wakulla limpkins. Audubon Magazine 52(5): 308-314, illus. September-October 1950.
Life history and habits of the limpkin at Wakulla Spring, Florida and throughout its Florida-Georgia range.

BIRDS--CRANES & RAILS--Continued

MUNRO, DAVID A. A study of the economic status of sandhill cranes in Saskatchewan. The Journal of Wildlife Management 14(3): 276-284. July 1950.
This study was made between May 10 and September 18, 1947. Breeding greater sandhill cranes were rare. During the fall large concentrations of lesser sandhill cranes used summer fallow, pasture, and stubble in the southern part of the Province. Damage to standing, stooked, or swathed grain may be considerable, particularly in years of late harvest and to crops of low yield.

BIRDS--SHOREBIRDS
(See also BIRDS--FISH-EATERS, Fisher)

ERICKSON, ARNOLD B. Bibliography of Wilson's snipe, Capella gallinago delicata (concluded). The Flicker 22(2): 49-60. June 1950.
The second part of a 250-item bibliography begun in 1939 and kept up-to-date. See Wildlife Review No. 61, page 31.

PETRIDES, GEORGE A. Notes on determination of sex and age in the woodcock and mourning dove. The Auk 67(3): 357-360. July 1950.

BIRDS--UPLAND GAME (GENERAL)

ANONYMOUS. Upland game birds of Oklahoma. Third edition. 31 pages, illus. Oklahoma Game and Fish Department, Oklahoma City, Okla. December 1949.
Behavior and status of bobwhite, wild turkey, mourning dove, greater and lesser prairie chickens, ring-necked pheasant, scaled quail, and other species; and suggestions for their management.

GINN, WM. E. Indiana's upland game population trends--1950. Outdoor Indiana 17(11): 2-3, illus. November 1950.
A map shows the trends in 6 regions of pheasants, quail, Hungarian partridges, and rabbits.

BIRDS--UPLAND GAME (BOBWHITE)

BUECHNER, HELMUT K. An evaluation of restocking with pen-reared bobwhite. The Journal of Wildlife Management 14(4): 363-377. October 1950.
This evaluation is based on a 1948 survey of the literature and the activities in 17 states. The author found that ".....the method is costly and does not materially increase the shootable population of bobwhite. With three exceptions bobwhite game farms in these states are being maintained at low level, production decreased, or abandoned." "Bobwhite numbers on an area are regulated not by the birds that may be liberated but by the carrying capacity of the area during the season of greatest stress."

BIRDS--UPLAND GAME (BOBWHITE)--Continued

KLIMSTRA, W. D. Bob-white quail nesting and production in southeastern Iowa. Iowa State College Journal of Science 24(4): 385-395, illus. July 1950.
The author conducted an intensive study of bob-whites on a 1600-acre tract in Davis County, Iowa from 1946 to 1949. The breeding populations for the 4 years were 72, 48, 16, and 57 birds. Nonproductive land supported more than three-fourths of the nests found. 28% of the nests hatched successfully. More than half of all nest losses were due to predation.

MOSBY, HENRY S. and OVERTON, WALTER S. Fluctuations in the quail population on the Virginia Polytechnic Institute farms. Transactions of the Fifteenth North American Wildlife Conference. Pages 347-353, illus. 1950.
Quail were studied during two 3-year periods, 1935-1938 and 1946-1949, on 2200 acres. Survival varied from 18% to 67%. "That proportion of the fall quail population which survived until the following spring appeared to be in inverse ratio to the number of days in which snow to a depth of one inch or more remained on the ground." "Cover appears to be the factor limiting the quail populations on this area."

MYERS, ROBERT. A delayed method of quail release. Kentucky Happy Hunting Ground 6(6): 5, 7, illus. November 1950.

ROSENE, WALTER, JR. Quail studies on a river floodplain. Journal of Soil and Water Conservation 5(3): 111-114, illus. July 1950.
Farms near Gadsden, Etowah Co., Alabama that have been improved with modern cropping and soil building practices since 1940 produced more quail in 1947 and 1948 than did unimproved lands.

STEEN, M. O. Road to restoration. Transactions of the Fifteenth North American Wildlife Conference. Pages 356-362. 1950.
On the same Missouri site, 3 years of bobwhite stocking were followed by 3 years of environmental improvement. The results of each were measured and compared. "Stocking was not an effective method of increasing quail populations..... Environmental improvement was....." "The Road to Restoration in Missouri, both economically and biologically, is BETTER LAND USE!"

THOMPSON, DONALD R. and MATTISON, HELMER M. Quail need food, cover--and space. Wisconsin Conservation Bulletin 15(11): 12-15, illus. November 1950.
The authors tell what a farmer must do to have quail.

BIRDS--UPLAND GAME (PHEASANT)

BALL, CHET. Pheasant habitat management. Game Bulletin 2(4): 11-12, illus. October 1950.
An account of The Farmer Cooperative Pheasant Habitat Development program in several eastern Washington counties.

BIRDS--UPLAND GAME (PHEASANT)--Continued

BUSS, IRVEN O. and SWANSON, CARL V. Some effects of weather on pheasant reproduction in southeastern Washington. Transactions of the Fifteenth North American Wildlife Conference. Pages 364-377, illus. 1950.

Nesting studies were made in 1948 and 1949. The spring of 1948 was abnormally wet and cool, and most nests hatched more than 2 weeks later than in the dry, warm spring of 1949. This seemed to have no effect on succeeding winter populations.

CLARKE, C. H. D. The management of the ring-necked pheasant in Canada. The thirty-ninth convention of the International Association of Game, Fish and Conservation Commissioners. Pages 58-64. 1949.

GINN, WM. E. Mr. pheasant calls: a report of the 1950 pheasant crowing count. Outdoor Indiana 17(9): 4-5, 19, illus. September 1950.

More pheasants were found in Indiana in areas with fertile soils than in areas with poor soils.

HARPER, HAROLD T.; METCALFE, GEORGE; and DAVIS, JOHN F. Upland game cooperative hunting areas. California Fish and Game 36(4): 404-432, illus. October 1950.

6 cooperative areas (72,100 acres) were operated by the State during the 1949 pheasant hunting season. The checked kill was 12,114 birds. Game farm birds, released on each area, accounted for half of the kill on 2 areas, 30% on the other 4. All 24 of the cooperating landowners reacted favorably to the plan. Hunter damage to the landowners' property was negligible.

JONES, PAUL V., JR. and FELTS, JESS. Pheasants in the Panhandle? Texas Game and Fish 8(11): 4-7, 27, illus. October 1950.

The authors describe the conditions and conclude, in part, ".....the outlook for the future of pheasants in the Texas Panhandle is anything but encouraging so long as the present and generally accepted land use program continues. We believe the two chief limiting factors now operating to prevent the increase of pheasants on the cultivated lands are the absence of any kind of good permanent cover and the scarcity and poor distribution of surface water."

YEAGER, LEE E. Burning: it's farm-game's enemy! Colorado Conservation Comments 10(15): 3-8, illus. October 1950.

"Excessive burning of game cover on farms [in Colorado] last year could have cost us a great part of our pheasant breeding stock. It made an already bad housing shortage worse for the birds. Only the unusually mild, open winter saved the ringnecks, and the possibility of hunting in 1950." The author analyzes the effects of fire on farm land, and recommends rules for its use.

BIRDS--UPLAND GAME (GROUSE)

BENDELL, J. F. S. and FOWLE, C. DAVID. Some methods for trapping and marking ruffed grouse. The Journal of Wildlife Management 14(4): 480-482, illus. October 1950.
Mirror trap and nets; dyes and metal dusts.

BOWERS, GLEN L. and TANNER, WARD D. The occurrence of blood parasites of grouse in central Pennsylvania. The Journal of Wildlife Management 14(4): 473-474. October 1950.

DALRYMPLE, BYRON W. Has the prairie chicken a future? Sports Afield 124(2): 19-21, 74-77, illus. August 1950.
".....destruction of natural habitat is the only basic reason we have almost no prairie chicken hunting today. Conversely, given somewhat altered land use, which would include reasonably abundant grasslands, we could perhaps once again have fair to excellent chicken hunting in at least a number of scattered areas over a wide territory."

HAMERSTROM, FRANCES. Range habits and food requirements of prairie chicken. Wisconsin Conservation Bulletin 15(11): 9-11, illus. November 1950.
In Wisconsin.

LEE, LEVON. Kill analysis for the lesser prairie chicken in New Mexico, 1949. The Journal of Wildlife Management 14(4): 475-477. October 1950.
More than 900 birds were examined during a 3-day hunting season in southeastern New Mexico in late November 1949. The range is principally low sand hills adjacent to fields of sorghum and corn. Nearly half of the birds were adults. Birds of the same age or sex tended to flock together.

PATTERSON, ROBERT L. The 1950 sage grouse season. Wyoming Wild Life 14(10): 18-21, 38. November 1950.
Results of the first extensive open season in Wyoming since 1936.

PATTERSON, ROBERT L. Sage grouse populations and land-utilization patterns in the Mountain West. Transactions of the Fifteenth North American Wildlife Conference. Pages 384-398. 1950.
"The elimination of sagebrush habitat and illegal killing.....have drastically reduced sage grouse numbers in previous years in certain areas of the West. Within the past few years sage grouse have increased remarkably on the remaining habitat....." "The fate of sage grouse, antelope and associated wildlife species in the Mountain West will depend upon the nature of our land-use programs and the knowledge of our wildlife."

BIRDS--UPLAND GAME (WILD TURKEY)

CRUMP, WILLIAM I. Turkeys on the move. Wyoming Wild Life 14(10): 10-13, illus. November 1950.

An account of trapping for transplanting in 1950 of Merriam turkeys stocked in the Laramie Peak area from New Mexico in 1935.

HOLLIS, F. D. The present status of the wild turkey in Louisiana. 78 pages, illus. Louisiana Department of Wild Life and Fisheries, New Orleans, La. 1950?

This report is based on studies made in 1941-42 and 1946-47. It discusses past and present occurrence in Louisiana, habitat requirements, environmental conditions in occupied localities, and limiting factors. There is a map of the State showing the principal forest types and maps showing turkey distribution in each of 13 parishes. Turkeys are at a critical low in most of the State. The few remaining flocks are dependent on large blocks of hardwood forests, low human population, protected areas, and little cultivated land.

MOSBY, HENRY S. Cooperative wildlife management on the Virginia state forests. Journal of Forestry 48(10): 700-702. October 1950.

Since 1940, 3 areas in central Virginia have been managed for forest game. Only 2 of the areas proved large enough for profitable management; but supervised hunting of turkeys has been successful on all.

BIRDS--UPLAND GAME (DOVES, ETC.)
(See also BIRDS--SHOREBIRDS, Petrides)

GINN, WM. E. Migration tendencies of the eastern mourning dove in northern Indiana. The Journal of Wildlife Management 14(4): 378-382, illus. October 1950.

McCLURE, H. ELLIOTT. An eleven-year summary of mourning dove observations in the west. Transactions of the Fifteenth North American Wildlife Conference. Pages 335-343. 1950.

The author's observations during 11 of the 12 nesting seasons of 1938 through 1949 began with a 3-year study in Iowa, and continued in Nebraska and California. Nearly 4600 nests were studied. Greater nesting success in California was attributed to better weather. However, in California the percentage of young to be fledged was lower.

MORELAND, RALEIGH. Success of chukar partridge in the State of Washington. Transactions of the Fifteenth North American Wildlife Conference. Pages 399-407. 1950.

Chukars were successfully planted in Washington in 1938, and by 1948 were established in 10 counties. They were first hunted in 1949. They have done best in foothill country in the central part of the State, where they apparently do not conflict seriously with other species.

BIRDS--HAWKS & OWLS

BAKER, JOHN H. Better protection for the California condor. Audubon Magazine 52(6): 348-354, illus. November-December 1950.

CRAIGHEAD, FRANK C., JR. and CRAIGHEAD, JOHN J. The ecology of raptor predation. Transactions of the Fifteenth North American Wildlife Conference. Pages 209-222, illus. 1950.

For several years, beginning in 1941, the authors made a detailed study of raptor ecology on a 36-square-mile area in Washtenaw Co., Michigan. They conclude, among other things, that "No single regulating force such as predation, intraspecific self-limiting mechanisms, habitat limitations, disease, or emigration will at all times have a controlling effect on prey populations." and that "The checks and balances between predators and prey and other regulating forces of the environment are the result of an infinite number of causes and effects that have evolved as animal life evolved.".

MURIE, OLAUS J. Let's confess that we like them: a reflective report on a great horned owl study. The Living Wilderness 15(32): 13-16, illus. Spring 1950.

The author found remains of a large number of mammals, birds, and other animals in about 1000 pellets and other horned owl food remnants from Wyoming and Nevada. More than half of all of the items were meadow mice. The other foods included rabbits, waterfowl, and upland game birds. "We have been accustomed to declare a bird or mammal 'beneficial' if it predominantly feeds on rodent pests." "Is it not preferable to say forthrightly that we are interested in keeping a hawk or owl in the fauna for its scientific interest, its beauty, or, simply, because we want it; .....?"

SPRUNT, ALEXANDER, JR. Vanishing wings over the Everglades. Audubon Magazine 52(6): 380-386, illus. November-December 1950.

The author believes that there remain in the United States less than 60 Everglade kites. Their only hope is in the holding of Lake Okeechobee close to its present level and in protection from gunners and egg collectors.

WALLACE, GEORGE J. In support of the barn owl. The Quarterly Bulletin 33(2): 96-105, illus. November 1950.

This is a non-technical simplification of the author's "The Barn Owl in Michigan" (see Wildlife Review No. 60, page 45).

BIRDS--SONGBIRDS

BEER, JAMES R. and TIBBITTS, DOUGLAS. Nesting behavior of the red-wing blackbird. The Flicker 22(3): 61-77, illus. September 1950.

Report of a detailed study made in a cattail marsh at Madison, Wisconsin in 1946, 1947, and 1948. Several drawings show different male display attitudes; two show territories in 1947 and 1948.

BIRDS--SONGBIRDS--Continued

DAVIS, DAVID E. The growth of starling, Sturnus vulgaris, populations. The Auk 67(4): 460-465, illus. October 1950.

ELLARSON, ROBERT S. The yellow-headed blackbird in Wisconsin. The Passenger Pigeon 12(3): 99-109, illus. July 1950.
"The yellow-headed blackbird has a highly localized distribution in Wisconsin with the largest number of breeding colonies concentrated in the southeastern portion of the state."

INGLES, LLOYD G. Nesting birds of the willow-cottonwood community in California. The Auk 67(3): 325-332, illus. July 1950.
"A survey of the 1949 nesting population in a Willow-Cottonwood Community in central California was made by taking a census on a 33-acre tract for a period of five months." "The bird community is essentially an 'edge' or ecotone type and supports a nesting density of 394 birds (197 pairs) per 100 acres (40 hectares) or 50 birds per kilometer of edge. Twenty species nested on the area but 71 were recorded there during the study."

KELSALL, JOHN P. A study of bird populations in the apple orchards of the Annapolis Valley, Nova Scotia, with particular reference to the effects of orchard sprays upon them. 69 pages, illus. Canadian Wildlife Service, Wildlife Management Bulletin, Series 2, No. 1. April 1950.
This study was made in 1946. The author concludes, in part, that "Commercial orchards in general offer poor shelter, feeding conditions and nesting sites for birds." "Bird populations will rise [from about 1 per acre] to at least 11 per acre, while food is abundant, in orchards where outbreaks of insects occur." "All sources of information indicate that the use of poisoned sprays, as normally applied in the commercial orchards of the Annapolis Valley, have no readily observable direct effect on the migratory bird populations nesting or feeding in the orchards."

LASKEY, AMELIA R. Cowbird behavior. The Wilson Bulletin 62(4): 157-174, illus. December 1950.
Observations in 1944-1946 at Nashville, Tennessee on the mating habits and territorial behavior of 29 colored-banded individuals.

MacQUEEN, PEGGY MUIRHEAD. Territory and song in the least flycatcher. The Wilson Bulletin 62(4): 194-205, illus. December 1950.
This study covered observations on 44 nests in Cheboygan Co., Michigan in 1942, 1944, and 1946.

PETERSEN, ARNOLD and YOUNG, HOWARD. A nesting study of the bronzed grackle. The Auk 67(4): 466-475, illus. October 1950.
Made at Madison, Wisconsin in 1947, 1948, and 1949.

BIRDS--SONGBIRDS--Continued

STOKES, ALLEN W. Breeding behavior of the goldfinch. The Wilson Bulletin 62(3): 107-127, illus. September 1950.

Results of a 3-year study on a 24-acre area at Madison, Wisconsin. Emphasis was on behavior, territory, and breeding success.

REPTILES & AMPHIBIANS

ALLEN, ROSS and NEILL, WILFRED T. The coral snake. Florida Wildlife 4(5): 14-15, 22, illus. October 1950.

The coral snake occurs in every county in Florida, chiefly in damp wooded areas having rotting logs and leaf-mold. Its main food is snakes; but lizards and perhaps frogs and minnows are occasionally taken. There are usually fewer than 6 eggs per clutch. Eggs hatch in 2 to 3 months. The young are 7 to 8 inches long, and are marked like the adults except paler. Few coral snakes are more than 36 inches long; the maximum in the U. S. is 47½ inches. Estimates of the human mortality rate from bites range up to 80%, but the authors believe that 20% is closer to the truth. Range, recognition, and bite symptoms are also discussed.—W. H. Stickel.

ALLEN, E. ROSS and NEILL, WILFRED T. The alligator snapping turtle Macrochelys temminckii in Florida. Ross Allen's Reptile Institute, Special Publication No. 4. 15 pages, illus. May 1950.

The preferred habitat of the alligator snapper is deep, dark rivers. It can be collected by swimming with a face mask when rivers are relatively low and clear, or can be gaffed when attracted to meat baits at night. Use of the appendage on the tongue as a lure to catch fish is verified. Food of this snapper includes all sorts of animal material, as well as aquatic grasses. The bite is severe, but not nearly as forceful as often pictured. Pharyngeal respiration is used; but in still water these turtles must surface in less than an hour. Courtship, nests, and eggs are described. There are data on growth in captivity, sex and age differences, weights and measurements.--W. H. Stickel.

ALLEN, E. ROSS and NEILL, WILFRED T. The life history of the Everglades rat snake, Elaphe obsoleta rossalleni. Herpetologica 6(5): 109-112. November 1950.

Range, habitat, eggs, ontogenetic color change, size, foods, aquatic tendencies, courtship, enemies. This form is considered common and specifically adapted to conditions in the Everglades.--W. H. Stickel.

ANDERSON, PAUL K. and SMITH, CLARENCE L. An electrical apparatus for herpetological collecting. Copeia 1950 (4): 322, illus. December 1950.

Diagram and brief description of a portable device that will shock or kill reptiles and amphibians when the electrodes are touched to their bodies.--W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

BRAGG, A. N., and others. Researches on the amphibia of Oklahoma. 154 pages, illus. University of Oklahoma Press, Norman, Okla. 1950. $1.00.

This is essentially a monograph of the amphibians of the State, with additional papers on ecology and sex cycles. The first paper has keys to eggs, tadpoles, and adult salientians; and discussions of State distribution, habitat, breeding, eggs, and natural history of tadpoles. The second paper is a key to adult salamanders. Other subjects include: salientian breeding dates in Oklahoma; salientian range extensions in Oklahoma; adaptations and distribution in accordance with habits in Oklahoma; adaptations of survival value in spadefoot toads.--W. H. Stickel.

BROWN, BRYCE C. An annotated check list of the reptiles and amphibians of Texas. Baylor University Studies: xii + 259. Baylor University Press, Waco, Texas. 1950. $4.50.

This book has wider usefulness than is implied by the title. There are keys to all groups; the natural regions of the State are described; and the occurrence of each form in respect to these regions is given in a table. A glossary aids in using the keys. The treatment of each form includes: scientific name, a single common name approved by the Texas Herpetological Society, a list of synonyms and selected references, type, type locality, range, Texas distribution, Texas records (by county and locality), and remarks. The remarks usually pertain to taxonomic or distributional problems, and focus attention on work still needed. For each genus is given: original reference, range, and number of known forms. Nomenclatural changes proposed since the volume went to press early in 1948 are listed in the addenda. There are no illustrations. All persons interested in the herpetology of the Southwest will want this valuable reference.--W. H. Stickel.

CAGLE, FRED R. Notes on Holbrookia texana in Texas. Copeia 1950 (3): 230. September 1950.

Observations on the greater earless lizard were made near Kerrville in the summer of 1949. The lizards displayed home range behavior. Females layed several clutches of eggs during the season. Young attained sexual maturity in their first year. Permanent coloration varied with the color of the prevailing rocks.--W. H. Stickel.

CHANEY, ALLAN, and SMITH, CLARENCE L. Methods for collecting mapturtles. Copeia 1950 (4): 323-324. December 1950.

Several kinds of river turtles that are hard to collect were obtained in large numbers at night by use of a highly maneuverable motor boat.-- W. H. Stickel.

DUNDEE, HAROLD A. An improved method for collecting living lizards and frogs. Herpetologica 6(3): 78-79, illus. August 1950.

A wooden gun that shoots rubber bands cut from live-rubber inner tubes is described and figured. It is said to stun large lizards at distances up to 10 feet.-- W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

GOIN, COLEMAN J. A study of the salamander, Ambystoma cingulatum, with the description of a new subspecies. Annals of the Carnegie Museum 31(14): 299-320, illus. September 1950.

A new race, A. c. bishopi, is described from the eastern Gulf Coast. All that is known of the ecology and life history of the species is presented.--W. H. Stickel.

GROBMAN, ARNOLD B. The distribution of the races of Desmognathus fuscus in the Southern States. Natural History Miscellanea No. 70. Pages 1-8, illus. October 1950.

The ranges of 3 races of the dusky salamander are reinterpreted. Almost without precedent is the broad zone where 2 or 3 races overlap from Virginia to Mississippi. It is said to represent interdigitation with relatively little intergradation.--W. H. Stickel.

HENSLEY, M. MAX. Results of a herpetological reconnaissance in extreme southwestern Arizona, with a description of a new subspecies of the Sonoran whipsnake, Masticophis bilineatus. Transactions of the Kansas Academy of Science 53(2): 270-288, illus. June 1950.

A taxonomic report on 108 snakes collected in the vicinity of the Organ Pipe Cactus National Monument in the spring and summer of 1949. Interesting records are given on range extensions or intergradation in the genera Phyllorhynchus, Chionactis, Lichanura, Thamnophis, Leptotyphlops, and Rhinocheilus. The area is evidently a critical one zoogeographically.--W. H. Stickel.

LIVEZEY, ROBERT L. An intergrade population of the Texas subspecies of Desmognathus fuscus. The American Midland Naturalist 43(3): 600-604, illus. May 1950.

A series of 35 dusky salamanders from Polk County was intermediate between auriculatus and brimleyorum. Quantitative data on these intergrades is given. Habitat and seasonal behavior are described. Foods of 14 individuals are listed. Eggs are described and figured.--W. H. Stickel.

LOWE, CHARLES H., JR. and NORRIS, KENNETH S. Aggressive behavior in male sidewinders, Crotalus cerastes, with a discussion of aggressive behavior and territoriality in snakes. Natural History Miscellanea No. 66. 13 pages. July 1950.

Fighting of male sidewinders is described. It is similar to that previously reported for various other snakes. There is evidence that such fighting represents contests for mates. The authors discuss the possibilities that fighting between male snakes plays a role in territoriality, social and sexual dominance, sex discrimination, and in testing sexual readiness. The need for concrete data on these topics is pointed out. Some snakes, particularly Natrix, Thamnophis, and Storeria, apparently do not display intraspecific combat behavior.--W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

NEILL, WILFRED T. Reptiles and amphibians in urban areas of Georgia. Herpetologica 6(5): 113-116. November 1950.

"The wholesale destruction of natural resources, far from abating, has even accelerated in recent years; and yearly the naturalist must go farther afield for specimens. It is therefore gratifying to the herpetologist to note that a surprisingly large number of amphibians and reptiles have become adapted to city life, often being abundant even in thickly populated sections." The corn snake, a rodent eater, has succeeded best, thriving in city business districts. The mode of life of 16 other species in suburban and urban residential areas is described. Most of the species, unlike the corn snake, persist in spite of civilization, by virtue of vacant lots, goldfish pools, and the like.--W. H. Stickel.

NETTING, M. GRAHAM. The amphibians and reptiles of Pennsylvania. 29 pages. Pennsylvania Board of Fish Commissioners, Harrisburg, Pa. 1949.

This annotated list gives distribution in the State and brief natural history data for each of 73 forms. An interesting and unusual feature is an introductory section listing maximum known lengths of each form.--W. H. Stickel.

POPE, CLIFFORD H. A statistical and ecological study of the salamander Plethodon yonahlossee. Bulletin of the Chicago Academy of Sciences 9(5): 79-106, illus. July 1950.

This study is based primarily on 128 specimens collected at four localities in Tennessee and Virginia. The range of the species is mapped. Altitudinal distribution is shown by a graph. Habitat and competition with related species are discussed at length. Foods of P. yonahlossee and P. glutinosus are compared in detail. Secondary sex characters are described and age at maturity is determined. Data are given on season of breeding and number of eggs. Analyses are made of variation in color, costal grooves, relative tail length, and of correlation of number of vomerine teeth with body length.--W. H. Stickel.

RODECK, HUGO G. Guide to the turtles of Colorado. University of Colorado Museum, Leaflet No. 7. 9 pages, illus. November 1950. 20¢.

Key, photos, and accounts of form, habits and range of 7 species.

SAVAGE, JAY M. An illustrated key to the lizards, snakes, and turtles of the West. 32 pages, illus. Naturegraph Co., Los Altos, Calif. 1949. 50¢.

According to a review on page 101 of Natural History for March 1950, this pamphlet will be useful for field identifications west of the Rocky Mountains.

SEIBERT, HENRI C. Population density of snakes in an area near Chicago. Copeia 1950 (3): 229-230. September 1950.

The collection ratio and Hayne's modification of it are applied to data on a huge population of snakes collected on a 3.2-acre area. The resulting estimates of the size of the population are rather unsatisfactory because of fluctuations in the ratio of marked and unmarked animals during the season.--W. H. Stickel.

REPTILES & AMPHIBIANS—Continued

SHAW, CHARLES E. The lizards of San Diego County with descriptions and key. Bulletins of the Zoological Society of San Diego No. 25. 63 pages, illus. October 1950.

A fine handbook to the lizards of San Diego County, California. There are introductory sections on saurian biology, an illustrated key designed for popular use, and excellent photographs of each form. Accounts of each form treat of distribution, habits, habitat, color, size, and comparisons with similar forms.--W. H. Stickel.

SINCLAIR, RALPH MASON. Notes on some salamanders of Tennessee. Herpetologica 6(2): 49-51. June 1950.

Locality and habitat data are given for 17 forms; remarks on reproduction or variation are given for several of the forms. Previous workers reported that larvae of the cave salamander (Eurycea lucifuga) lived deep in caves, but in the present study these larvae were found only outside of caves.—W. H. Stickel.

SMITH, HOBART M. Handbook of amphibians and reptiles of Kansas. University of Kansas Publications, Museum of Natural History, Miscellaneous Publication No. 2. 337 pages, illus. September 1950.

This excellent guide to the herpetology of Kansas is designed especially for the layman but will be useful to professionals. For each of 97 species there are statements of range in the state, description, recognition characters, habits and habitat, Kansan subspecies (if any), and a list of selected references. The detailed distribution of each form in Kansas is mapped, and its total range is shown by an insert map. Most forms are illustrated by photographs. There are 233 figures, including maps, photographs, and drawings. Illustrated keys and a glossary facilitate identification. Eggs and larvae of amphibians are keyed insofar as possible. There are also sections on collecting, care of living animals, preservation of specimens, treatment of snake bite, and a hypothetical list.--W. H. Stickel.

SMITH, HOBART M. and TAYLOR, EDWARD H. An annotated checklist and key to the reptiles of Mexico exclusive of the snakes. United States National Museum, Bulletin 199. 253 pages. 1950. 75¢ from Government Printing Office.

This is a most welcome guide to the turtles, lizards, and crocodilians of Mexico. The keys are complete, dichotomous, and based largely on external characters. For each species is given: collection and number of type and its collector, type locality, range and Mexican distribution, synonymy. Occasional taxonomic comments are in footnotes. There are an itinerary, a gazetteer, lists of forms from each Mexican state, and an index. This volume completes a series of checklists and keys to the Mexican herpetofauna by the same authors. Snakes were treated in U. S. National Museum Bulletin 187, 1945; amphibians in U. S. National Museum Bulletin 194, 1948. Thanks are due the authors for having made available an up-to-date resumé and guide to the literature of an extremely complicated herpetofauna.--W. H. Stickel.

REPTILES & AMPHIBIANS--Continued

STAHNKE, HERBERT L. The food of the Gila monster. Herpetologica 6(4): 103-106. October 1950.

The foods and artificial feeding of Heloderma are described. It is concluded that the Gila monster in the wild is exclusively a nest robber. It frequently takes bird and reptile eggs and occasionally a baby mammal.--W. H. Stickel.

STICKEL, LUCILLE F. Populations and home range relationships of the box turtle, Terrapene c. carolina (Linnaeus). Ecological Monographs 20(4): 351-378. October 1950.

A quantitative field study of a local population of box turtles was made on a wooded area on the Patuxent Research Refuge, Maryland, during 1944-1947. Methods included intensive collecting and the use of a thread-trailer device to follow individual travels. Data are presented on behavior in relation to environment, territory and home range, size of home range, movement patterns in the home range, travels outside the home range, and size of the population.--Lucille F. Stickel.

WOODBURY, A. M. and HANSEN, RICHARD M. A snake den in Tintic Mountains, Utah. Herpetologica 6(3): 66-70, illus. August 1950.

Blasting of a rattlesnake den in 1937 failed to prevent its use by 5 species of snakes. About 300 rattlers were killed at the den in 1937, but only 70 were found there in 1949. The number of young using the den was low. The authors believe from this and other studies that older snakes are more attracted to the den than are young (This casts doubt on published estimates of mortality of young based on den samples.). The number of large eggs carried by female rattlers coming to the den equalled 64% of the rattlesnake population of the den. The equivalent figure for another den was 100%. Graphs show the numbers and sex of rattlesnakes and striped racers of different lengths trapped at the den. Males of both species attain greater lengths than females.--W. H. Stickel.

WRIGHT, ALBERT HAZEN. Common names of the snakes of the United States. Herpetologica 6(6): 141-186, illus. December 1950.

Dr. Wright has performed a real service in bringing together for the first times the hundreds of common names applied to our snakes. Names are grouped according to their main element, such as "northern", "grass", or "black". It is thus necessary for one seeking all names of a given snake to search through the entire paper. The author discusses several methods by which a single common name might be selected for a form. He favors acceptance of the name that has had most frequent usage, and is wary of arbitrary selections by individuals or committees, preferring to let matters work themselves out over a period of time. The first proposal would lead to the perpetuation of undesirable names such as "milk snake" and vastly overworked ones such as "ground snake". The second proposal would continue the present chaotic condition, which is being aggravated by the flood of new common names.--W. H. Stickel.

FISHES

BAUGHMAN, J. L. and SPRINGER, STEWART. Biological and economic notes on the sharks of the Gulf of Mexico, with especial reference to those of Texas, and with a key for their identification. The American Midland Naturalist 44(1): 96-152, illus. July 1950.
There is a list of nearly 200 references.

CARLANDER, KENNETH D. Handbook of freshwater fishery biology. 281 pages, illus. Wm. C. Brown Co., Dubuque, Iowa. 1950. $4.50.
".....this handbook is primarily a source book for quick reference to data on freshwater fishes. An attempt has been made to include all tabular material for which conservationists and biologists have frequent need. Research workers will probably find it most valuable as a bibliographical guide to the original investigations." Almost all of the data are in compact tables, in clear print. They relate mostly to the life histories of more than 160 species. The bibliography fills 40 pages.

MOORE, GEORGE A. and PADEN, JOHN M. The fishes of the Illinois River in Oklahoma and Arkansas. The American Midland Naturalist 44(1): 76-95, illus. July 1950.
This is the report of a survey made in 1946. "The Illinois River is probably one of the richest rivers in the United States in regard to number of fish species." "The construction of the dam at Tenkillers Ferry poses some problems in the management of the fishery resources of the River and the impoundment. In the past the policy has been to stock impoundments heavily with game species as soon as possible and, although present policies are changing, to continue stocking thereafter. In view of the very rich fish fauna already present, the writers believe that the stocking of more game fishes, of indigenous species, would be a ridiculous waste of money and effort in spite of what may appear to be present in the youthful years of the lake."

REID, GEORGE K., JR. The fishes of Orange Lake, Florida. Quarterly Journal of the Florida Academy of Sciences 12(3): 173-183. September 1949 (1950).
This is the first detailed account of the fishes of a single Florida lake. It is based on an intensive study in 1947 and 1948. Orange Lake, in Alachua County, comprises 14,000 acres of open water surrounded by marginal marsh. It is 35 feet deep, has circum-neutral water, and has an abundance of vegetation and invertebrates. 37 species of fishes are known to occur.

SHAPOVALOV, LEO and DILL, WILLIAM A. A check list of the fresh-water and anadromous fishes of California. California Fish and Game 36(4): 382-391. October 1950.
101 species (75 native, 26 introduced).

FISHES--Continued

TREMBLEY, F. J. The effect of predation on the fish population of Pocono Mountain lakes. Proceedings of the Pennsylvania Academy of Science 22: 44-49. 1948.

The numerous lakes and ponds of this northeastern Pennsylvania area have a large population of stunted fish. This is due primarily to man's removal of a natural population of predators. "A return of a natural population of predators [the common water snake is recommended] would thin out fish populations, remove the cause of stunting, and eventually provide better fishing."

MOLLUSKS

VAN DER SCHALIE, HENRY and ANNETTE. The mussels of the Mississippi River. The American Midland Naturalist 44(2): 448-466, illus. September 1950.

This article includes a review of the surveys made in the region, a discussion of 6 major faunal areas, a discussion of the distribution of 39 species in the Mississippi River, an indication of the changes that are due to adverse conditions, and a description of collection localities in 14 different Mississippi River areas.

ARACHNOIDS

KNIPPING, PAUL A.; MORGAN, BANNER BILL; and DICKE, ROBERT J. Notes on the distribution of Wisconsin ticks. Transactions of the Wisconsin Academy of Science, Arts and Letters 40(pt. 1): 185-197, illus. Madison, Wis. 1950.

Maps show distribution by counties of 12 species. The authors cite many records from wild mammals and a few from wild birds.

INSECTS

KNIPPING, PAUL A.; MORGAN, BANNER BILL; and DICKE, ROBERT J. Preliminary list of some fleas from Wisconsin. Transactions of the Wisconsin Academy of Sciences, Arts and Letters 40(pt. 1): 199-206. Madison, Wis. 1950.

32 species of fleas are reported from 26 species of mammals (including dog, cat, house mouse, house rat, and hamster) and 2 species of birds.

CRUSTACEANS

PENN, GEORGE HENRY. The genus Cambarellus in Louisiana (Decapoda, Astacidae). The American Midland Naturalist 44(2): 421-426, illus. September 1950.

This is the first of a series of papers on the crawfishes of Louisiana. It describes the morphology, distribution, life history, and ecology of 2 species.

VEGETATION--COMMUNITIES & HABITATS

CATENHUSEN, JOHN. Secondary successions on the peat lands of Glacial Lake Wisconsin. Transactions of the Wisconsin Academy of Sciences, Arts and Letters 40(pt. 1): 29-48, illus. Madison, Wis. 1950.

"The purpose of this paper is to present the results of studies [1937-1940] of the effects of drought, drainage, fire, a restored or rising water table, and flooding upon the plant successions on the peat lands [300,000 acres] in the bed of Glacial Lake Wisconsin."

DUNKLE, MERYL BYRON. Plant ecology of the channel islands of California. University of Southern California Publications, Allan Hancock Pacific Expeditions 13(3): 247-386, illus. November 1950. $2.50.

FOSBERG, F. R. Remarks on the factual basis of ecology. Ecology 31(4): 653-654. October 1950.

Studies in plant ecology should include the collection and preservation of specimens of all the kinds of plants involved.

LEOPOLD, A. STARKER. Vegetation zones of Mexico. Ecology 31(4): 507-518, illus. October 1950.

From original observations and literature the author describes 5 climax zones of temperate and 7 of tropical affinities. Pine-oak forest is the most extensive zone and the one that is most important to man and to game. Its vegetation and other natural resources have been seriously impoverished.

WEBSTER, GRADY L. Observations on the vegetation and summer flora of the Stockton Plateau in northeastern Terrell County, Texas. The Texas Journal of Science 2(2): 234-242. June 1950.

A discussion of the relation of plant associations to physiography in this trans-Pecos extension of the Edwards Plateau.

VEGETATION--FLORAS & MANUALS

AMMONS, NELLE. Shrubs of West Virginia. West Virginia University Bulletin, Series 50, No. 12-4. 127 pages, illus. June 1950.

This manual includes keys, descriptions (many with notes on uses and special characteristics), and drawings of about 200 species.

ANDERSON, J. P. Flora of Alaska and adjacent parts of Canada. Part VIII. Gentianaceae to Campanulaceae. Iowa State College Journal of Science 24(2): 219-271, illus. January 1950.

Publication of this flora was begun in 1943. Part VII was issued in January 1949 (see page 29 of Wildlife Review No. 57). Keys and descriptions are concise. Drawings are grouped at the end. They show a flower or fruit and a leaf of most of the species.

VEGETATION—FLORAS & MANUALS—Continued

CORE, EARL L. A checklist of the vascular plants of West Virginia, following Gray's Manual of Botany, 8th edition. 71 pages, illus. West Virginia University, Morgantown, W. Va. 1950.
1999 species are listed, each with a brief statement of range.

HULTEN, ERIC. Atlas of the distribution of vascular plants in NW. Europe. 119 + 512 pages, illus. Generalstabens Litografiska Anstalts Förlag, Stockholm, Sweden. 1950. $17.50.
Contents, 13-page summary, explanation of signs, and glossary are in English. Finely detailed maps summarize environmental factors; others (4 to a page) show for each species its range and general abundance in Norway, Sweden, Denmark, Finland, and a small part of the Soviet Union and the Baltic countries.

TAYLOR, RAYMOND F. and LITTLE, ELBERT L., JR. Pocket guide to Alaska trees. 63 pages, illus. U. S. D. A., Agriculture Handbook No. 5. June 1950. 25¢ from Government Printing Office.
This guide describes and maps Alaska's forests; keys, describes, and pictures its 30 native and 1 naturalized species of trees; and describes a few shrubs.

VEGETATION—FOREST

BRAUN, E. LUCY. Deciduous forests of eastern North America. 596 pages, illus. The Blakiston Co., Philadelphia, Pa. 1950. $10.00.
The author's aim was ".....first, to portray what is (or was) present in any geographic area and to reconstruct the pattern of original forest insofar as the fragments remaining permit; second, to give data on composition and aspect of forest communities in all parts of the deciduous forest; and third, to trace through geologic time the development of the present pattern of forest distribution." She describes in clear detail 9 forest regions (mixed mesophytic, western mesophytic, oak-hickory, oak-chestnut, oak-pine, southeastern evergreen, beech-maple, maple-basswood, and hemlock-white pine-northern hardwoods).

BUELL, MURRAY F. and CANTLON, JOHN E. A study of two communities of the New Jersey pine barrens and a comparison of methods. Ecology 31(4): 567-586, illus. October 1950.
One of the two communities studied in 1948 and 1949 was dominated by pitch pine, the other (the older community) by oaks. The differences seem to be due mainly to age as influenced by fire history. The authors used quadrats and transects. Transects gave better data. They describe a cover sight ".....which permits accurate measurement of cover and open space in the tree canopy."

VEGETATION--FOREST--Continued

DUERR, WILLIAM A. Forest statistics for southwest Arkansas. 21 pages, illus. Southern Forest Experiment Station, Forest Survey Release 65. August 1950.

This report covers 20 counties. More than two-thirds of their area is commercial forest land. Between 1936 and 1949 forest-land acreage increased 6%. In the same period pine decreased and hardwoods increased. A map shows 4 generalized forest types: upland hardwood, bottomland hardwood, loblolly-shortleaf pine-hardwood, and shortleaf pine-hardwood. Data are based on aerial photos and sample plots.

FINCH, T. L.; HODGE, W. C.; and METCALF, M. E. Forest resources of south central Montana. Northern Rocky Mountain Forest & Range Experiment Station, Station Paper No. 23. 21 pages, illus. April 1950.

This regional report completes the Montana series begun in 1941. The field inventory on which it is based was made in 1947-1949. More than 1/3 of this 9-county area is forest land. One-fourth of the forest is non-commercial (includes Yellowstone Park and 2 primitive areas). The commercial forest is 98% softwood (half lodgepole pine, one-third Douglas-fir).

GUISE, CEDRIC H. The management of farm woodlands. Second edition. 356 pages, illus. McGraw-Hill Book Co., Inc., New York. 1950. $4.00.

On pages 194-200 a portion of the chapter on "The Care and Improvement of Woodlands" discusses the production of wild life food and cover by farm woodlands and the management of farm woodlands for wild life. On pages 234-239 there is a discussion of damage from grazing livestock.

HARE, F. KENNETH. Climate and zonal divisions of the boreal forest formation in eastern Canada. The Geographical Review 40(4): 615-635, illus. October 1950.

KEMP, PAUL D. and DICKERMAN, M. B. Montana forest resource and industry statistics. Northern Rocky Mountain Forest & Range Experiment Station, Station Paper No. 25. 50 pages, illus. October 1950.

The forest area (about 1/4 of the State) was determined from aerial photographs and field examination. A large colored map shows 8 major forest types and areas of non-commercial forest. These forest types and 2 others, not mapped, are Douglas-fir, ponderosa pine, white pine, larch, hemlock-grand fir, lodgepole pine, spruce-fir, western redcedar, coniferous woodland, and hardwoods.

KING, D. B.; ROBERTS, E. V.; and WINTERS, R. K. Forest resources and industries of Missouri. 89 pages, illus. Missouri Agricultural Experiment Station, Research Bulletin 452. December 1949.

A more detailed report than that in "Forest Resources of Missouri", by E. V. Roberts and others, published in September 1948 (see Wildlife Review No. 56, page 35). It includes descriptions of the State's physical characteristics and economy, its forest resource and forest-products industries, and a forest restoration program. A section on multiple use of forest lands discusses watershed protection, recreation, wildlife, and woodland grazing.

VEGETATION--FOREST--Continued

MORAVETS, F. L. Forest statistics for Lake County, Oregon. 19 pages, illus. Pacific Northwest Forest and Range Experiment Station, Forest Survey Report No. 102. May 1950.

Aerial photos are the basis of most of the information in this inventory. A little more than one-fourth of the total area of the county is forested, and more than four-fifth of this is commercial forest. Of the commercial forest, more than two-thirds is federally owned. 80% of the saw timber is ponderosa pine, 13% is white fir, 5% is lodgepole pine. A map shows the generalized forest types.

ROBERTS, E. V. and others. Forest statistics of central Kentucky. 49 pages, illus. Central States Forest Experiment Station, Forest Survey Release No. 9. June 1950.

This region comprises the Western Coalfield, Pennyroyal, Bluegrass, and Cumberland subdivisions, and excludes only 11 western and 8 eastern Kentucky counties. Forest varies from 2% of the area in some Bluegrass counties to 90% of the area in some Cumberland counties. Oak-hickory and mixed-hardwood types make up about three-fourth of the commercial forest. The amount of saw timber is low. There is a brief description of 8 forest types (pine, cedar-hardwoods, oak-pine, oak-hickory, white oak, beech-maple, mixed hardwoods, bottomland hardwoods) and a list of nearly 50 species found in the region. Data are based on the study of aerial photos and the field examination of plots.

RUDOLF, PAUL O. Forest plantations in the Lake States. 171 pages, illus. U. S. D. A., Technical Bulletin No. 1010. August 1950. 45¢ from Government Printing Office.

This bulletin contains a section on "Planting Food and Shelter for Wildlife" (pages 79-82), one on "Planting for Erosion Control" (pages 83-84), and one on "Plantation Enemies and Their Control." Animal enemies are discussed on pages 97-103. They include snowshoe hares, cottontails, rodents, deer, cattle, and birds.

SANDBERG, LYNN; HORN, ARTHUR G.; and GUILKEY, PAUL C. The forest resources of Carlton County. 50 pages, illus. Office of Iron Range Resources and Rehabilitation, 624 State Office Bldg., St. Paul 1, Minn. 1950.

Two-thirds of the County is commercial forest land, but much of this area is not producing timber. Aspen, by far the most extensive forest type, makes up 40% of the commercial forest; 11 other forest types total about 25%; the remainder is grassland and brush.

VEGETATION--BRUSHLAND

EDMINSTER, FRANK C. Use of shrubs in developing farm wildlife habitat. Transactions of the Fifteenth North American Wildlife Conference. Pages 519-548. 1950.

This article discusses 7 species recommended for general use in the Northeast, 17 for limited use.

VEGETATION--BRUSHLAND--Continued

HOWARD, WALTER E. Wildlife depredations on broadcast seedings of burned brushland. Journal of Range Management 3(4): 291-298, illus. October 1950.
In California many such seedings have been unsuccessful because of the removal of seeds by birds, rodents, and harvester ants. An effective and economical repellent is needed.

VEGETATION--GRASSLAND

COUPLAND, ROBERT T. Ecology of mixed prairie in Canada. Ecological Monographs 20(4): 271-315, illus. October 1950.
Mixed prairie covers a very large area in southeastern Alberta and southern Saskatchewan and extends into Montana and northwestern North Dakota. In the 1940's the author made detailed studies of plant communities in 92 selected sites and less intensive examinations in about 60 other sites. He includes descriptions of the environment; 7 major communities; the distribution of grasses, sedges, forbs, and shrubs; plant yield as a measure of environment; and succession.

CRANE, BASIL K. Condition and grazing capacity of wet meadows on the east slope of the Sierra Nevada Mountains. Journal of Range Management 3(4): 303-307, illus. October 1950.

GREEN, PHOEBE ANN. Ecological composition of high prairie relics in Rock County, Wisconsin. Transactions of the Wisconsin Academy of Sciences, Arts and Letters 40(pt. 1): 159-172. Madison, Wis. 1950.
Stipa spartea was the dominant prairie grass in 1947. Panicum species were its most important associates.

HANSON, HERBERT C. Vegetation and soil profiles in some solifluction and mound areas in Alaska. Ecology 31(4): 606-630, illus. October 1950.
The author describes the vegetation in 5 widely separated areas. Sedges were the most important species (Carex bigelowii, the most abundant and widespread of all). Mosses, willows, and heaths were common. The ground was saturated with water; and there was usually peat close to the surface, fine silt below that, and frozen ground usually 10 to 25 inches below the surface.

MUEGGLER, WALTER F. Effects of spring and fall grazing by sheep on vegetation of the upper Snake River plains. Journal of Range Management 3(4): 308-315, illus. October 1950.
Results of a 25-year study of sagebrush-grass range at Dubois, Idaho. Heavy spring stocking severely reduced grass and forb production; heavy fall stocking had little effect.

VEGETATION--WILDLIFE PLANTS

LAY, DAN W. Bicolor lespedeza in east Texas. Texas Game and Fish 8(11): 14-15, illus. October 1950.
The author describes some of the conditions for successful growth of this legume, which ".....continues to be the best planting we know for bobwhite food in the eastern half of Texas."

ROSENE, WALTER, JR. Spreading tendencies of multiflora rose in the southeast. The Journal of Wildlife Management 14(3): 315-319. July 1950.
At the sites of 3 old plantings (14-40 years) in Alabama and Georgia multiflora rose, in 1948 and 1949, was invading surrounding unimproved pasture land. Seeds were being carried by water and birds.

SHAFFER, C. H. The use of ladino clover in wildlife management. Virginia Wildlife 12(1): 10-12, 22, illus. January 1951.
It is proving to be a favorite food of deer, turkeys, and rabbits on state forests in central Virginia.

TIEMEIER, OTTO W. The multiflora rose in farming and for wildlife. 16 pages, illus. [Kansas] Forestry, Fish and Game Commission, Bulletin No. 8. 1948.
Characteristics, care, and value to farmers and to wildlife.

VEGETATION--AQUATIC

BOURN, WARREN S. and COTTAM, CLARENCE. Some biological effects of ditching tidewater marshes. U. S. D. I., Fish and Wildlife Service, Research Report 19. 30 pages, illus. 1950. 60¢ from Government Printing Office.
"Studies conducted over a 12-year period, 1935-47, of the biological effects of ditching tidewater marshes in Delaware for mosquito control showed that marked ecological changes in the floral cover and invertebrate fauna followed such operations. These studies revealed that systematic ditching, which has proved useless as a permanent mosquito-control measure, resulted in shrubby growths succeeding the marshes' natural vegetation and greatly reduced invertebrate populations so important as waterfowl food."

DOUGLAS, MARJORY STONEMAN. The Everglades: river of grass. 406 pages, illus. Rinehart & Co., Inc., New York. 1947. $3.50.
There is a chapter on "The Nature of the Everglades"; others that recount the history of their Indians, white and black men; and still others that describe their drainage and its resulting fires, invasion of saltwater, and, finally, plan for overall water and soil conservation.

JONES, JENKIN W.; DAVIS, LOREN L.; and WILLIAMS, ARTHUR H. Rice culture in California. U. S. D. A., Farmers' Bulletin No. 2022. 32 pages, illus. September 1950. 15¢ from Government Printing Office.
A section on pages 26-31 describes ricefield weeds, several of which are native marsh plants that are used by waterfowl as food and cover. Damage to rice by blackbirds, ducks, and coots is described on pages 31 and 32.

VEGETATION--AQUATIC--Continued

PENFOUND, WM. T. Vegetation of Lake Chicot, Louisiana in relation to wildlife resources. The Proceedings of the Louisiana Academy of Sciences 12: 47-56, illus. 1949.

"Lake Chicot is an artificial lake averaging about seven feet deep, with .....moderate, mixed stands of bald cypress and tupelo gum throughout." "The fanwort and lotus, which invaded the lake in great numbers, had decreased the wildlife value of the lake considerably by the autumn of 1945." "These species are being controlled largely by heroic recessions of water levels (5-7 ft.) during the winter."

VIOSCA, PERCY, JR. Natural checks on the water hyacinth, Pariopus crassipes. The Proceedings of the Louisiana Academy of Sciences 12: 65-71. 1949.

"With a more thorough knowledge of the natural checks on the water hyacinth, their possibilities and limitations, we will be in a strategic position to place our control measures on a more economic basis. We should take advantage of seasonal fluctuations and of every normal and abnormal condition which causes temporary or local reduction of the growth." "Flood control measures on the Mississippi system, combined with canalization of the low country, seem to be the factors which favor the most profuse development of hyacinth mats."

WOOD, R. D. Stability and zonation of Characeae. Ecology 31(4): 642-647, illus. October 1950.

"A study of a small pond [in Massachusetts] and herbarium specimens collected from several lakes indicates that Characeae may be transitory plants or may occur for fifty or more years in a given habitat." "Transects made in the vegetated zones of three lakes [2 in Massachusetts, 1 in New York] indicate that the Characeae are not restricted to the outermost zone as is a common concept. They may occur above, amid, and below the zone of attached aquatics." "The Characeae frequently sort out into zones represented by different species....."

LAND & SOILS

BAILEY, REED W. Watershed management: key to resource conservation. Transactions of the Fifteenth North American Wildlife Conference. Pages 68-75. 1950.

McCLINTIC, C. F. Why fertilize? West Virginia Conservation 14(10): 4-12, 33, illus. January 1951.

Relation of health of people, domestic animals, and wild animals to soil fertility.

PICK, LEWIS A. An engineer's view of land and water conservation. Transactions of the Fifteenth North American Wildlife Conference. Pages 52-58. 1950.

LAND & SOILS--Continued

SAUNDERSON, MONT H. Western land and water use. 217 pages, illus. University of Oklahoma Press, Norman, Okla. 1950. $3.75.

Among many subjects that bear on wildlife, there are discussions of big-game herds in relation to western land resources as a whole and to the national economy (pages 35-39), the relations of big game and livestock (page 52), wildlife refuges (page 99), and multiple-use management of wild lands (pages 103-107).

WATER

(See LAND & SOILS, Bailey; Pick; Saunderson)

CLIMATE & WEATHER

GEIGER, RUDOLF. The climate near the ground. A translation of the second German edition of "Das Klima der Bodennahen Luftschicht." 482 pages, illus. Harvard University Press, Cambridge, Mass. 1950. $5.00.

Part 1 describes the microclimate near the ground under the headings of (1) heat exchange, (2) temperature relations, (3) other meterological elements, and (4) the grounds's influence on the climate. Part 2 describes the relations of the microclimate to topography, plants, animals, and man. Much of the book's information is important to biologists.

SHANKS, ROYAL E. and NORRIS, FRED H. Microclimatic variation in a small valley in eastern Tennessee. Ecology 31(4): 532-539, illus. October 1950.

"A typical small valley near Knoxville, Tennessee was studied with reference to fall temperature pattern and trend, frost pattern and actual freezing damage to tomato plants which were used as phytometers. The area was occupied by unpastured natural vegetation, with contrasting association-segregates on the opposing north- and south-facing slopes." "Duration of freezing temperature at the various stations on a night of continuous record proved to be a more reliable criterion of relative frost hazard than the minima attained at those stations."

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